

Original Correspondence.

CORNISH MINES, AND SUPPLIES.

SIR,—Much interest has been excited in the county by the publication in the Journal of the various letters respecting the supply of materials to mines. There is no denying that the system attacked has been a great grievance—long known and seriously felt by many merchants as well as the most experienced adventurers. I much question if any party is particularly benefited by the present arrangement: the merchants, to maintain their position, have to hold a large, and at times an expensive, interest, while the independent shareholders, dissatisfied with what they feel to be an unfair disposition of their capital, frequently so far at times withhold complying to the calls as to necessitate the premature closing of promising sets. Now, what occurs to myself and friends, not only to remedy the evil complained of, but to establish a better system of management, one that must prove satisfactory to adventurers, and ensure the best description of materials, is to publicly advertise for tenders for a supply of all that may be required for the use of the mine. Let all the merchants have a fair chance of our business; we shall be better supplied, and the money expended in merchants' calls will not have to be made up in the charges. I recollect when the tenders for West Caradon and other mines used regularly to appear in the *Mining Journal*. I do not think the captains, or others concerned, will say they are better or more cheaply served now than then.

J. SIMS.

CORNISH MINES, AND SUPPLIES.

SIR,—I am gratified to find that my letter of enquiry has had the desired effect, so far as one article of commerce is concerned. The mines are certainly under very great obligations to "An Old Adventurer" and to an "Outsider," for the valuable information contained in their letters, and which I hope will induce the adventurers in every mine to adopt some simple plan to prevent such anomalies as are described by your correspondent, "Outsider." The mode adopted by Messrs. John Taylor and Sons, of Queen-street-place, Upper Thames-street, in their mines—that is, that all materials purchased for the use of the mine shall be made by tender, would do this—there is no cavilling, no heartburns, as to overcharges by certain great houses, and sundry paltry deductions from the little bills of men of smaller note! No adventurer has any reason to doubt or grumble at Messrs. Taylor's mine meetings. He has only to compare the charges with the list of tenders, and the commercial part of the business is settled. This simple and easy method of management is sure to give satisfaction to at least the "out adventurers." The honest and straightforward course pursued for so many years by the head of that house inspired universal confidence in his integrity, and to have given him a "testimonial" while he lived would have been but to "render honour to whom honour was due." That venerable man, however, has passed away to his peaceful rest, and as yet I do not hear a whisper of a public tribute to the memory of this honourable and noble-minded gentleman. Probably, if he possessed his "million," the mining community would long ago have been called upon to emblazon his tablet with "gilded grandeur." To do something now that he is departed, would be a proof that the miners of Cornwall—nay, of all England—appreciate the public conduct and real worth of a man "who lived before his time," but of whom it may be justly said, "his works do follow him." Sir, I believe the miners' hearts are full of the best thoughts concerning him. They only want some leading spirit to commence the good work, and we should have an outburst of that generous soul which fills the breast of every Cornish miner.

AN ADVENTURER.

CORNISH MINES, AND SUPPLIES.

SIR,—Being desirous of casting in my mite towards this important subject of supplies to mines, which gives me great satisfaction in reading, simply for this reason—I have proved the gross custom practised in the west and north sides of the county of Cornwall, in not only mine adventures, but by consumers of timber generally, and have not failed to remonstrate with mine committees on this point; but, being wise in their own conceit, they say a foot is a foot. This is true, when you get it; but 8 or 9 in. cannot be a foot. Then, what about the captains? I have heard that if one individual in the West has the management of five or six mines he can live without a salary at all. Can anyone solve this enigma? As to the line drawn by one of your correspondents, I am doubtful if the timber-dealers at Charlestown confine themselves to the duty-paid measure in their sales. For my own part, I believe when *most* of Par a consumer will find himself really *below* Par; and here it is where the two measures come in contact. To strengthen my remarks, I now give you an example of timber delivered in a mine as duty-paid measure, and on investigation, thus—charged by the merchant 168 feet; when compared at the Custom-house it was 117 ft. only; excess, 51 ft.; and where you find most competition you find the shortest measure—what a consolation!

A correspondent says, the late Mr. Treffry remedied this evil by contracting only for Customs' measure. This might also lead us to ask, as they continue to tender for timber, why they do not tender for coals and castings as they used to do? The mines are decidedly not enhanced in value the last few years, but depreciated some 500 or 800 per cent. Then, again, mine captains are placed on committees to act as tools for iron-founders and merchants, and at times four-fifths of the shares in their names belong to other parties, whose cause they advocate. New engines, pumps, crushers, cages, rods, &c., all *new*, when neighbouring mines are buying just as good at 300 or 400 per cent. less. I say, let me see a committee that will allow their captain to buy his materials in the cheapest way, and give the company the benefit of second-hand goods, just as good as new, at frequently 50 to 70 per cent. less. Such ones act honestly; but where our friend — or — is a larger holder, "Oh, we must give him the order," or "there is nothing particular required," but on examining the next quarterly accounts, you will find a heavy bill for new castings. Such a committee is an abomination to honest speculators, as well as to—

VICTIM.

THE ANTICIPATED EXHAUSTION OF COAL.

SIR,—After reading the Address of Sir Wm. Armstrong to the British Association for the Advancement of Science, in the Supplement to last week's Journal, it occurred to me that the following Suggestions, which I submitted in Feb., 1860, to the Lords of Her Majesty's Treasury, might very properly be printed. You will oblige me, therefore, by publishing them in the Journal.

W. H. JAMES, C.E.

1. That a stringent law be enacted to prevent any further exportation of coal from this country, except to British colonies and dependencies, and for the use of British steam vessels. And that every reasonable encouragement should be given by the Government to such persons whereby their inventions shall succeed in economising the consumption of coal in this country, the present waste of which, in my humble opinion, amounts to full three-fourths of the whole quantity consumed. And that an offer of a large reward should be published (say, 100,000*l.*) for the discovery of a cheap substitute for coal, without any admixture thereof, applicable to all purposes to which coal is at present employed. My reason for tendering the above advice is that more than 40 years ago I had the superintendence of my late father's extensive collieries in Staffordshire and Warwickshire, and well recollect it was generally considered that the *full moiety* of all the main *ten-yard* coal of the former county, and of the principal coal strata in the latter county, as well as in Shropshire, was (even at that early period) *worked out*. And, further, from observing a statement in the *Mining Journal* of Oct. 10, 1857, that large quantities of coke were at that time being conveyed from the coal mines in Durham for the use of the blast-furnaces in Staffordshire, showing, beyond all question, the scarcity of coal suitable for the iron manufacture in these districts, which scarcity, I have no doubt, would be found to apply to many other localities; and also from a strong impression, resulting from some considerable experience in coal mining, that the coal fields of this country are much nearer exhaustion, as regards coal of good quality, than is generally imagined, and to such extent that if the expenditure and exportation of coal are allowed to go on increasing in the same ratio for the next century as for the last few years, the people of this country will then have to depend in a great measure upon a foreign supply of that most indispensable article; and when so exhausted of coal, what, let me ask, will be the condition of this country as a manufacturing nation?

2. That all dealers in food, beverages, and medical preparations should be compelled to take out licenses (say at 5*l.* or 10*l.* per annum), such licenses being summarily forfeited and annulled upon any dealer being convicted of fraudulent adulteration, or of using false weights or measures. To this tax, which would be productive of a very large and easily collected revenue, I feel satisfied the general public would not object, as more than an

equivalent advantage would be gained in the purity of all articles of consumption.

3. The sinking of a pair of shafts or pits, at the Government expense, into what are now considered the primitive rocks, to as great a depth as it is possible to penetrate, for purposes of discovery.

4. The establishment of a permanent commission for investigating and reporting upon the claims of individuals for public services rendered or losses sustained in the public service, with a view to speedy remuneration or compensation.

W. H. JAMES, C.E.

MESSRS. RIDLEY AND JONES'S COLLIERY VENTILATOR.

SIR,—Whether my statements with regard to Messrs. Ridley and Jones's ventilator are absurd or otherwise, perhaps your disinterested readers are better able to judge than Mr. Ridley himself, more especially when Mr. Ridley's figures prove that my assertions are not groundless. He cannot see the analogy between a machine to ventilate mines and a centrifugal pump, although his ventilator is itself nothing more nor less than a centrifugal pump. This machine has usually been applied to pumping water. Messrs. Ridley and Jones use it to pump air, and I maintain that there is the same objection to it in both instances. I stated in my last that "while the International Exhibition was open I have seen Messrs. Gwynne's large pump made to evolve at 50 revolutions per minute, without a pint of water being raised, and at 100 to 150 revolutions per minute there was a fair volume of water thrown—but with all centrifugal-pumps there is an enormous waste of power. A centrifugal-pump will not pump at all driven at a moderate speed, and the quantity pumped does not increase in proportion to the speed; yet this is what Messrs. Ridley and Jones would have us accept as the most efficient ventilator extant;" and maintain that I was justified in doing so.

Alluding to the experiment on April 29, as given by Mr. Ridley, it will be seen that my view is fully borne out, the increase of speed not producing a corresponding increase of ventilation. With 60 revolutions per minute Mr. Ridley says he got 108,032 cubic feet of air per minute, which gives 1801 cubic feet of air for each revolution. He then increases the speed to 70 revolutions per minute, which, of course, should give him 1801 \times 70 = 126,070, instead of which he gets only 113,240, or only 1618 cubic feet for each revolution, the loss, consequently, being more than 11 per cent. The fact is, 60 revolutions per minute is about the best speed at which a fan can be driven. Driven at 50 revolutions per minute, the result would be scarcely better than at 70, and it is not improbable that the ventilator would cease to pump altogether. This is the case not only with Messrs. Ridley and Jones's, but with all fan ventilators, and is one great objection to them. It must, of course, be assumed, as they do not state to the contrary, that all the circumstances were the same in both experiments, yet we find that the velocity of the air per revolution was the same in the north air-course, whether the fan was going 60 or 70 revolutions per minute, whilst in the south air-course it was 20 per cent. greater with the fan at 60 than with it at 70 revolutions per minute. These are objections which are certainly not calculated to induce a favourable opinion towards the fan.

In comparing the Elsecar fan with Messrs. Ridley and Jones's, it should be considered that as there were five air-ways at Elsecar, and only two at Ardsley, a very different result would be shown in figures at the two pits, even with the same machine. The dimensions of the machines are about equal, but there is an amount of extra work to be done at Elsecar which, in my opinion, more than compensates for the differences shown by Mr. Ridley. Comparative experiments should be made under similar conditions. With respect to the Elsecar fan, Mr. Ridley states that 82,294 cubic feet were produced immediately the pit stopped working, and 74,718 cubic feet a few hours after it had stopped. Does the stoppage of the pit mean the stoppage of the fan? If so, perhaps Mr. Ridley will explain by what agency the ventilation was continued.

Mr. Ridley has not attempted to show that mechanical ventilation of any kind is more economic than the furnace, although that would be most important to the success of his invention. In all cases where mechanical ventilation is used, there is the wear and tear and cost of repairs of the ventilator, steam-engines, boilers, &c., in addition to that incurred for the furnace. In my opinion there is nothing equal to the furnace; and if such an invention as that of Mr. Abraham Rogers, of Farnley Wood Bottom Colliery, or some modification of it, were introduced, I believe little further improvement would be necessary. As the invention has not been patented, there would be no royalty to pay, so that there could be no objection on that point. Mr. Rogers proposes to coke his slack in the ventilating furnaces, by which means he ventilates his pit for nothing, and converts that which is otherwise worthless into a marketable commodity; surely this is a system of ventilation more entitled to consideration than any mechanical contrivance that could be devised.

A DOGGY.

STRANGE PRODUCTION FROM A BLAST-FURNACE.

SIR,—Referring to the paragraph on a strange production at the Coatbridge blast-furnaces, which appeared in last week's Journal, I may, perhaps, be allowed to say that I have seen the same flakey matter blown out of the back tye of a blast-furnace near this place; it resembles fine hair, but is quite brittle. It is neither more or less than slag, though it is somewhat curious that it should be thrown off in the form and manner described. It is an incident of rare occurrence.

WM. BROWN.

Northampton, Sept. 7.

LOOK TO YOUR ARTICLES OF ASSOCIATION.

SIR,—"Lux Obscura" has studied the law of public companies far too deeply to be led astray by Mr. Brook's interpretation of the Companies Act, 1862, and flatters himself that he can discuss a question without resorting to personalities of any kind. As to uncharitable insinuations against promoters and directors, I fear that I am justified in stating that they are too often open to them, though I admit that the adoption of special articles is very frequently caused by the desire of the solicitors to put fees into their pockets, regardless, I am sorry to say, of the best interests of the company, or of the individual shareholders. Mr. Brook throws upon me the responsibility of proving my assertion, that "the promoters of public companies have full power to bind the shareholders to articles which have never been submitted to them, and which may contain provisions directly adverse to the shareholders' best interests," and that Mr. Brook has not shown that promoters do not possess that power. My task will here be anything but difficult.

Firstly, as we are discussing the power of promoters before the company has any existence, and as sections 50 and 51, quoted by Mr. Brook, apply only to companies that are already formed, they do not bear upon the question; secondly, section 15, also quoted by Mr. Brook, is fatal to his argument; and, thirdly, section 16 would likewise have been so, had he quoted it without mutilation. I will now prove that Mr. Brook has no authority to write—"The law, therefore, stands as follows:—Articles of Association may be used, but they must be signed and duly attested by each subscriber, and be in the nature of a specialty debt. Ordinarily—Table A is intended for the regulations of companies; if any departure is sought, as I stated, it must be by special resolution, passed at two general meetings of the company duly convened, and not otherwise." Mr. Brook does not recognise the distinction between "the company" and "the promoters," although no two terms can be well more distinct when special articles are adopted. Special articles are always drawn in the interest of the promoters, and even when they are submitted to counsel, the utmost which the barrister is expected to do is to alter articles as are so obviously inequitable towards the individuals who may be unfortunate enough to become shareholders, that they would be declared by a court of law not to be tenable. This I unhesitatingly challenge Mr. Brook to disprove.

In registering a company, it is simply necessary to hand to the Registrar of Joint-Stock Companies, as Mr. Brook well knows, the Memorandum of Association, accompanied (where the promoters think it to their own interest to adopt special articles) by Articles of Association framed to meet their wishes, and containing any provisions not absolutely illegal, which they or their advisers may choose to insert. Nor is this all; the applicants for shares are bound by these promoters' articles, and are made responsible for infringing them, although they probably know nothing whatever of their contents. That the promoters are competent to adopt any special articles they choose is proved by the 15th section, quoted by Mr. Brook—"In the case of a company limited by shares, if the Memorandum of Association is not accompanied by Articles of Association, or in so far as the articles do not exclude or modify the regulations contained in the Table marked A in the first schedule hereto, the last-mentioned regulations shall, so far as the same are applicable, be deemed to be the regulations of the company, in the same manner as if they had been inserted in the Articles of Association, and the articles had been duly registered."

From Mr. Brook's allusion to section 16 he, no doubt, wishes it to be inferred that no shareholder can be bound by articles which he has not signed. This is not the case. The Act simply requires that the Memorandum of Association shall be signed by seven persons, each of whom shall undertake the responsibility attaching to one share. The whole of these seven persons may be promoters. When special articles are adopted, all that the Act requires is that they shall be signed by the same persons who signed the Memorandum of Association. These special articles may be fair or unfair towards the independent shareholders, but with reference to them a part of section 16, not quoted by Mr. Brook, says that "when registered they shall bind the company and the members thereof to the same extent as if each member had subscribed his name and affixed his seal thereto, and there were in such articles contained a covenant on the part of himself, his heirs, executors, and administrators, to conform to all the regulations contained in such articles."

Capitalists must surely see that the responsibility thus thrown upon them is enormous, yet they accept the whole of this responsibility in applying for shares, and authorising the placing of their names on the register of shareholders. This is the great, almost sole, defect in the Act, yet it gives promoters a power, and places capitalists at a disadvantage, almost too great to be calculated. Capitalists have but one remedy, and that has been frequently pointed out in the columns of the Journal, both editorially and by correspondents. It is this—Never apply for a share in a limited company, unless it is stated in the prospectus that Table A is adopted in its integrity, or the depar-

tures from it are distinctly stated. Special articles have almost invariably a special object, and that not in the interest of the bona fide and independent shareholders.

It is true that after the registration of the company the objectionable articles can be modified by a special resolution passed, by three-fourths of the members present at two special meetings, but the trouble is great, and the advantage of the officers of the company (who have means of private communication with every individual member, from their power over the share register) is so great as compared with that of the individual shareholders, that the latter have very little chance of success. There is an old saying, that "one story is good until the other is told," which well applies here. The officers of the company can make *ex parte* statements to the individual shareholders, whilst their opponents have no means of answering them. The independent shareholders can only communicate with their co-partners through the columns of the Journal, and the officers can, and frequently do, misconstrue the published statements, and lead many to suppose that they are answered (the individuals having no means, until too late, of proving the counter-statements false), and thus obtain proxies, and override opposition. Capitalists must take care that the articles first registered are fair towards them (Table A is as equitable as could possibly be desired), for they may rest assured any alteration afterwards will be extremely difficult, unless such alteration is to the interest of those in power.—*Colchinton House, Bedford.*

LUX OBSCURA.

COPPER MINES IN SANTO DOMINGO.

SIR,—At the inauguration of the Platano Mining Company, accidental circumstances prevented the attendance of Professor Ansted and Mr. Josiah H. Hitchins; and, as the letters which were then read from those gentlemen have not yet been published, I venture to request the favour of your now giving them currency. If I may judge from the progress made in this undertaking, notwithstanding the usual dulness at this holiday period, I shall have no cause to regret the course I have adopted in establishing it.

J. LEE STEVENS.

36, Cannon-street, E.C., Sept. 10.

Cambridge, Aug. 16.—In reply to your letter of the 12th inst., I beg to say that, in my opinion, you will find the mining district of El Hoyo, in the Island of Santo Domingo, reported on by me in 1855, well worthy of commercial enterprise. There is no doubt that the whole of the neighbourhood is mining ground, and that both gold and copper were obtained from it by the Spaniards before the disturbances by which Santo Domingo was revolutionised. I may add that, so far as Col. Heneken is concerned, the most perfect confidence may safely be placed in his statements from the spot. Not only has that gentleman been long resident in the island, but he is in all respects competent to give an opinion.

D. T. ANSTED.

Exeter, Aug. 25.—I regret not being able to attend your meeting to-morrow, which I feared when at your office having a sight of the samples of copper ore, the produce of your St. Domingo Mines, with which I was very much pleased, more particularly with the largest and richest rocks, far exceeding anything that I expected to see. I could not help believing, considering what I was looking at was only the produce of the superstructural portions of your lodes, that by opening them out, and actually bringing them into operation deeper, you will be able to realise far greater, more regularly continuous, and more richly concentrated courses of copper ore than you have yet done. It is clearly inferential from what Messrs. Ansted, De Castro, Pooley, Husband, and Heneken say in their reports, (and they are evidently practically conversant with the matters they write on) that some of your lodes are large and very powerful, carrying a great abundance of highly mineralised and altogether most desirably constituted gossan on their backs (surface outcrops), and at no great depth below rich copper ore, in its various forms of red, grey and purple oxidised, green and blue carbonates, and sulphides. In addition to which, various other valuable and appreciable mineral properties are noted in the lodes, it is equally clear that the rock formations and geological conditions, necessary to the existence of rich and abundantly productive courses of ore, prevail in such a marked manner as not to be mistaken. I shall, therefore, feel much interest and great confidence in looking forward to the results of your important mining works, and most sincerely wish you success.

Consulting Mining Engineer to the Devon Great Consols Mines.

P.S.—Surely the large rocks of rich ore in your office are safe guarantees that the lodes will be very abundantly productive at no great depth below.—J. H. H.

MINES, MINING, AND SMELTING IN SIBERIA—No. I.

SIR,—The gold mines, properly so called, are in the Ural Mountains, but are no longer the chief source of supply, which is to be found in the clay and detritus, extending over the vast eastern regions, along the low ridges trending from north to south in the Governments of Tomsk and Yeniseik, ridges which may be considered offshoots from the great east and west chain of the Altai, which separates Siberia from China. The annual yield of gold of the eastern Siberian tracts and of the Ural Mountains has witnessed in the last 20 years an extraordinary augmentation, and may be put down at 6,000,000*l.* sterling. When the investment of capital in mining operations, working the mines, and transporting the products become more widely known, it is reasonable to anticipate that Siberia will become a greater favourite with English capitalists. The Russian Government is, perhaps, the most forward in the world to remunerate individual skill, and there is no doubt that many processes for reducing ores that have been hitherto in this country, with some slight modifications, have advantageously been introduced into Siberia. The Russian Government is on the alert to avail itself of scientific improvements, and the important use to which hydraulic pressure has been applied in California has led it to urge its advantages on Russian proprietors of mines. No country is more ready to appropriate foreign improvements, and when works now in operation are completed the same surprising results will be visible in Siberia that have been brought about on the American shores of the Pacific. A stream of water will be seen tearing up hills of earth, doing the work of thousands in a day.

The mines of Siberia are asserting year by year a growing importance by their increasing yields. Various circumstances have conspired to draw away the attention of English capitalists from this region, which owns to a political as well as natural isolation. The Germans, however, and many of the Russian nobles, have found their account in carrying on mining in different forms. The compulsory labour on the Russian Government mines, on the part of political and other exiles, absorbs but a small amount of the number actually engaged in mining, which proves an acceptable means of livelihood to the Tartar and Russian population, who, with the aborigines, number 3,600,000. Thirty years ago the value of the yield of Russian gold fell short of a million pounds. Gold mining received its first great impulse in the reign of Alexander, when the gold mines of the great Siberian rivers in the mountains were traced north and south of the locality in a certain zone, extending through 6° of latitude. The yield, which in 1837 was 17,669 lbs., has now been increased to about 130,000 lbs. The gold of the Ural is obtained from detritus of quartz rocks and crystalline limestones on the eastern sides. The great eastern tracts, where gold is chiefly obtained, show many excavations of very ancient times.

A considerable amount of the auriferous deposits occur, as already stated, in a heavy clay, extending through an upland depression, which has absorbed the precious auriferous product of watery abrasion on the Asiatic side of the Ural. The eroded and worn condition of the eastern face of the Ural chain, from which vast masses of drift must have been torn and scattered through a long series of years, is certainly a remarkable feature. The Russian Government does not itself undertake the working of mines to the extent commonly supposed. The yield from the public mines falls far below the private mines; and the product of the public washings is but a fraction of that supplied by private washings. The duty varying from 5 to 32 per cent., according to the quality of the gold, charged on the produce of private works, leads to extensive smuggling; and a consequent addition—say, of 25 per cent.—must be made to the official returns to reach a fair estimate of the actual produce. Gold is found in the washings both coarse and fine; it has commonly a rusty appearance, and that collected on the borders of the tributaries of the great Siberian rivers is mixed with curious and almost most minute shaped grains of sand. These washings are chiefly successful on the tributaries of the great Siberian rivers, and which are more in the localities of the auriferous detritus supplied from off the eastern flank of the Ural, and the ridges trending north and south from the east and west chain of the Altai. The Tartar population, shrinking from laborious mining operations, engage in the collection of the sand with avidity. A nomadic race, able to build their houses in a day, they are continually gratifying their love of change, and will forsake tried and good locations merely for the sake of change. To separate the gold from the quartz and alluvium with which it is found in combination, processes by no means intricate are resorted to. Water power is abundant, and is made available for the process of pulverising. A stream of water is made to drive a large stone or iron wheel, which runs round and round in a bed similar to that of the arastra. Sometimes there are two, and even three wheels. A stream of water runs continuously in whilst the machine is at work, an escape being afforded at the same time for the surface water and lighter particles. The estimate having been previously made of the amount of gold in the quartz, the pulverised quartz and water is no sooner a consistent mass than 125 per cent. of quicksilver to the estimated amount of gold by weight is added; presently the arastra is flooded by water, which intermixing with the thick pulp, allows the particles of quicksilver and amalgam to disengage themselves, and settle to the bottom. The thin muddy substance is then flushed and carried off by water, and the gold and amalgam are exposed, deposited on the bed of the arastra. The sulphure of iron, copper, and lead are not unfrequently present, and, of course, proportionately interfere with this amalgamation.

There is abundance of wood for timbering for mines, but pillars of ore are usually left standing at given distances to support the roof. These pillars are of such large dimensions as to render the mine permanently secure. The inclination of the veins is so gentle that not uncommonly the mine may be entered by means of steps cut in the side of the shaft. These steps allow of the ore and quartz being carried to the surface on the backs of men. But in the most important mines this original method is now neglected, and windlasses perform the work. Drifts are run from the shafts north and south of the veins, which usually have a slight dip to the west. From these drifts other shafts are sunk at suitable distances apart, and again from these other drifts radiate, ore being taken to leave standing sufficient supports. Accidents from falling in of the roof of the mines are scarcely ever known. The auriferous quartz, when brought to the surface, undergoes the usual separation by collection; the more valuable is rudely broken up, and then conveyed by water, if necessary, to some central stamping and amalgamating mills. The machinery for cleansing, separating, and retorting the quartz is on a mammoth scale. Auriferous silver, combined with gold in very considerable proportions, has been worked. It is found in granular heavy spar, accompanied by vitreous silver ore, vitreous copper, and pyrites. Auriferous sulphuret of silver frequently presents itself in a vein of Jasper.

EAST CARADON MINE.

SIR,—Capt. Secombe, in his letter in last week's Journal, says "I took the earliest possible opportunity of informing the shareholders of the discovery, as soon as I could ascertain the value of the lode cut." This is no answer to the allegation that the lode was cut on the Friday, that large purchases of shares were made on Saturday by one broker, and that it was not communicated to the London Exchanges till Monday. For whom were these shares sold?—Humour says for the management. By whom were these shares sold?—Quoting from Captain Secombe's letter, "by men who have been my co-partners," who sold in ignorance of any discovery having been made.

The object of the meeting of the Mining Exchange referred to was to try the validity of the power assumed by the managers of East Caradon to close the mine against the shareholders for a month at a time. Capt. Secombe does not hint in his indignation letter to this important matter, but attempts to impugn the respectability of the gentleman deputed to apply for a peremptory order to inspect, by stating that he holds only one share; this is beside the subject. I am informed that the members of the Mining Exchange, as being one of their committees, to try a question which they took upon as one of vital importance to the mining interest, and the principle of the cost-book management of mines.

Capt. Chas. Thomas was chosen, as holding a position far above all suspicion, to in-

sect the mine, in the event of the Vice-Warden granting an order, and that the vested interests at issue, whether or not the reserves are worth 30,000l., or 100,000l., may be set at rest. I am told that the matter will be argued before the Vice-Warden in the course of a few days, and beyond all doubt this serious question to the cost-book management of mines will be vindicated—that the shareholders have the power to manage their own property, and to inspect books, papers, and their own mines at all reasonable times. Captain Secombe will do well to cease his opposition to a principle sacred to mining in Cornwall.—*Liskeard, Sept. 9.*

EAST CARADON MINE.

Sir,—In the spring of last year a correspondent of the Journal cautioned the public against the then high prices of East Caradon and East Carn Brea shares, for which he was severely taken to task by some of the brokers; but it seems that these gentlemen have at last (as soon as it answered their purpose) found out their mistake, and the opinion is now almost universal that East Caradon shares are selling at a price much below their real worth. To the opinion of mining brokers I attach the least possible importance, but I am, unfortunately, almost as sceptical about the opinion of mining captains in relation to their own particular mines; not because I think, as a rule, that they wish to deceive, but on the principle that a man is generally too much biased in favour of his own property. With all deference to Captain Secombe, I am afraid that he forms no exception; for, on referring to his report, and to what he said at the meeting in January last, the following statements were made (see *Mining Journal*, page 20):—"The mine never looked so well as at present, or so likely to pay the shareholders good and consistent dividends." And again, "During the past three months the shares had been as low as 35s., but they were now 46 to 47, and likely to go still higher." Against the opinions thus expressed by the captain of the mine, the quarterly dividend has fallen off from 20s. to 12s. 6d., and the shares have greatly declined.

Whilst I would not for one moment impugn the high respectability of Capt. Secombe, I cannot concede even to him that there are not other agents who are possessed of great ability, and who are equally as respectable as he; and when it is well known that amongst them the opinion prevails that the mine is being worked too fast, and that the reserves are being considerably intruded upon, Capt. Secombe must not be surprised if people think that he may again be mistaken in his expectations. It is obviously to the interest of shareholders to keep up the price of shares; but, so long as shareholders offer their shares to the general public, I consider the public has an undoubted right to be satisfied of the correctness of any statements the agents may put forth. Half the ruin that has been occasioned by public companies has been brought about by the neglect of this precaution.

I presume that even Capt. Secombe would not now value the reserves at more than 30,000l. (I am stating the amount very liberally), so that the speculative future value of the mine is rated at the enormous sum of 90,000l., and this, too, in the face of the lowest level not having turned out nearly so well as the upper ones. What if the next level should also still further fall off?—I am not at all disposed to say that the mine is a bad mine. If the present shareholders like to keep their shares, by all means let them do so, and I hope in twelve months they will not regret their resolve; but I again repeat, that if any of them offer their shares to the public, the public has an undoubted right to see that the statements put forth can be fully borne out by facts. I think most of your readers will regret the resolve not to allow Capt. Thomas to inspect the mine, as an independent inspection by him would, I should have thought, be satisfactory to all parties, excepting those who have misgivings that the mine in reality is not worth what it is represented to be.—*Sept. 10.*

EAST WHEEL GRENVILLE.

Sir,—In my former letter respecting East Wheel Grenville, I stated that a 2s. call would, in all probability, be sufficient to pay for the 60-inch engine. Several parties disbelieved this, and circulated a report that, at least 2000l. would be required for the purpose, and that the mine would have to stop some fabulous length of time, whilst the engine was erecting. Many persons said that these reports were circulated for the express purpose of depreciating the price of the shares, but whether that was the object or not, there is no denying the fact, that down the shares went as soon as this report got abroad. I do not, nor have I ever believed that this was the object of these parties, but others are wicked enough to say that they cannot doubt about it. The shares have, however, partly recovered their price, although, considering the greatly improved state of the mine, they are much beneath their real value.

Everyone is saying, "how strange it is that East Grenville, with its splendid prospects, does not go higher!" The fact is, this steam-engine has been a complete incubus hanging over the mine; but I am happy to inform the shareholders that it is now removed, as the engine is purchased, and that my estimate of a call of 2s. a share being sufficient to pay for it was just what was necessary for the purpose, as the following particulars will prove:—

Cost of second-hand 60-inch engine and boiler..... £300 0 0
Estimate of repairs to make it equal to a new engine..... 250 0 0
Carriage and erection..... 130 0 0—£680 0 0
Lowest value of the engine now at work..... 280 0 0

Total cost of engine..... £680 0 0

It will thus be seen that, by a little management, and the sale of the old engine, a 60-inch engine, equal in every respect to a new one, with a boiler, will be erected for 680l. It will be observed that I have reckoned a very low price for the old engine; and I am informed that it is not probable the repairs will amount to what I have reckoned; a 2s. call will, therefore, be amply sufficient.

I know some parties will cry out, "All very fine, but where is your house to put your large engine in? your present engine-house will not do?" Gentily, my friends, listen: the engine-house is already erected, as, fortunately, the present house was built expressly for a 60-inch engine. The next cry will be that the mine will have to stop three or four months, whilst the engine is erecting. Do not believe it, my friends. Captain Odgers is confident that when the engine is on the mine, and all ready to be erected, that he will have it to work in a fortnight afterwards. He has well considered the matter, and knows what he is promising. Some parties would, perhaps, take months about it, but Captain Odgers does not belong to the "slow-coach school."

Now, as the above statements are all plain, stubborn facts, was I not right in comparing the reports about the enormous expense that the mine would put the adventurers to, in the erection of a steam-engine, new boiler, &c., to "a tempest in a teapot?" I have said that a 2s. call will be all that will be required to pay for the engine, and I will now state, that I consider it very probable that we shall not require any call at all to pay for it. I give my reasons for this supposition. The engine is not to be paid for for six months, by which time the mine will be at the 75 fathom level, and the other levels opened on very considerably; thus the returns of copper will be increased, and, instead of only 8 to 9 tons of tin being returned quarterly, the great probability is that double that quantity will be raised, as at present only four heads of stamps can be kept working from the deficiency of power, but when the 60-inch engine gets fairly to work, the full complement of the mine—eight heads of tin-stamps—can be kept in full work. With the increased returns, therefore, both of copper and tin, I think it is very probable that no call whatever will be required to pay for the engine. No call will be required for the purpose at the next meeting; and as the call at the last meeting was only 1s., I am in hopes that no call whatever will be required at the next one.

East Wheel Grenville is opening up a great mine, and the miners throughout Cornwall consider it one of the best speculations of the day. As one of the committees of management, I have considered it my duty to the adventurers to give them the foregoing particulars. The shares have been this day sold by auction, at 31. 16s. 6d. each.

A CAUTIOUS MAN.

IRON AS AN AMERICAN PRODUCTION.—The value of iron, and the decline in the production of English furnaces about the commencement of the 16th century, threatened to leave Great Britain entirely dependent on her colonies for supply. Every attention was, therefore, turned to the immense mountain forests of the American colonies, which supplied this important mineral, which resulted in the discovery of ore in Virginia. As early as 1610, according to the testimony of Sir Thomas Gates, "divers sorts of minerals, especially of iron lying upon the surface of the ground," were found in the James River country, in Virginia. In the year 1610, a London company sent to that section a large number of emigrants, among whom were some 150 skilled workmen in the manufacture of iron. Works were immediately established on Falling Creek, a branch of the James, and not far from the ancient settlement of Jamestown, for smelting the ore, a mine of the brown ore having been found there, from which good iron was readily made. But Indian jealousies were aroused against the pale faces, who were spoiling their hunting grounds, and in May, 1622, the whole colony, except a boy and girl, were cut off. Ironworks were not again attempted at that place for nearly half a century, but New England mountains were found to contain many of the grosser metals, among which leadstone, ironstone, black, and red lead, copper, &c., are named. The first attempt to manufacture iron ore—found in the peat bogs and marshes of the colony of Massachusetts Bay, was made in 1637 or 1638, in the town of Lynn. An association was soon afterwards formed, called the "Company of Undertakers for the Ironworks," comprising many of the prominent citizens of the colony, and some in England. This company, with Mr. John Winthrop, jun., as its general superintendent, applied to, and obtained from the general court many charters and privileges, some of which were afterwards granted to monopolies. After granting "to them and their assigns forever," 3000 acres of land at Braintree, they gave them the exclusive privilege of making iron for 21 years, provided they made iron enough, after two years, for the use of the country. The next season—1644—another year was added to the time that they were allowed to furnish the country with a complete assortment of bar-iron, at 20l. per ton. A grant of three square miles of land was also made in each of these places they might occupy. It was thus that the Pilgrim Fathers lent the fostering care of the infant colony to home production—monopolies were not so much dreaded then as now.—*Ontonagon Miner.*

The increase of the Petroleum trade rapidly continues. According to the last accounts, the shipments from New York since the beginning of the present year have reached 13,500,000 gallons, valued at 1,000,000l., while those from Philadelphia have been about 4,000,000 gallons, valued at 200,000l., a larger proportion of the crude oil being sent thence. Boston also has dispatched 1,500,000 gallons, and Baltimore 750,000 gallons—making a total of nearly 20,000,000 gallons less than eight months.

Lord Palmerston last week visited the new slate quarry under Moelwyn Mawr, now being opened by the Welsh Slate Company. The weather was very unfavourable, but it fortunately cleared up before his lordship left the ground, and opened the magnificent view to be seen from this spot of Cardigan Bay, with its distant coast on one side, and St. Tudwal Island and the coast of Llyn on the other. Forthard, Harlech Castle, and the wooded scenery around, being in the foreground. The slate bed in which this quarry is being opened is a continuation of the well-known slate ground of the Festiniog Quarries, and the same in which the adjoining quarries of Croesor and Rhoeyth are now being worked. This quarry will be worked in chambers, under the surface, in the same manner as those at Mr. Oakley's quarries, but, like the Croesor Quarry, will be wholly underground. This latter quarry commenced working about two and a half years ago, and is approached by a spacious tunnel a quarter of a mile long. It is worked in galleries, by means of a subterranean incline, the wagons being put on weights up the shaft at the top of the incline which serves for the ventilation, and each side of the incline works independently. There are now seven chambers just commenced slate making, and others are in course of opening. The quality of the slate is excellent, but, like all new quarries, requires time for development. The system of ventilation for both quarries is the same as is adopted in all extensive underground works, and when completed will be very perfect. The principal working places are lighted up. The slates from these quarries will be conveyed to the shipping port by a railway, now in course of construction from the Croesor Railway, a distance of six or seven miles. The public will be rejoiced to hear that his lordship seems in very good health, and it shows the vigour of his constitution in being able to visit such high ground.—*North Wales Chronicle.*

Meetings of Mining Companies.

MINING COMPANY OF ITALY.

A meeting of gentlemen interested in the mineral resources of the Bellabio district, on Lake Como, in Northern Italy, was held at Graham House, on Thursday.—Mr. Miles Charles Saxon in the chair.

The CHAIRMAN requested Mr. J. Baxter Langley to act as secretary of the meeting, and called upon him to state the purpose for which it had been called. Mr. LANGLEY explained that, in the first instance, attention was directed to certain valuable deposits of lead ore which occurred near Bellabio, on the Lake of Como, and they learned that the mines in which these deposits occurred could be purchased upon favourable terms. Being desirous that every investigation should be made, their first step was to ascertain that the title of the vendor was beyond question. The result of the enquiries being perfectly satisfactory, it was proposed to form a limited liability company, composed partly of English gentlemen and partly of gentlemen of first-class position in the district of the proposed mines, to purchase and work the deposits of lead ore, which were represented as being sufficiently rich to make mining highly profitable. Before the publication, however, of any prospectus, it was considered prudent to obtain a further reliable report by a practical English mining engineer, in addition to the reports, assays, specimens, &c., which had been previously obtained. Mr. George Darlington, of the Minera Mine, near Wrexham, was accordingly dispatched to the place, with instructions to make a full enquiry with regard to the whole matter connected with the Bellabio Mines, and to report thereon in detail. That gentleman had returned with accounts more than amply justifying the original statements made as to the value of the property, and leading to the conclusion that there was nowhere a more bona fide and profitable field for investment than in the district alluded to. The gentlemen originally interested in the undertaking were recommended, therefore, to increase the area of the purchase, and had resolved to form a company of a more extensive character than that originally contemplated. They desired in the first instance, however, to lay all the facts before those whom they invited to co-operate with them, and to court the most searching enquiry and investigation. He might state, in conclusion, that Mr. Darlington estimated that when the mines were laid open a dividend of 35 per cent. per annum upon a capital of 50,000l. might be realised, and that a dividend of 25 per cent. per annum might be obtained within eighteen months. He then submitted the subjoined report of Mr. George Darlington, with Mr. John Darlington's remarks upon it:—

"Conformably with the instructions I received from you to visit and report upon the Bellabio Mines, on Lake Como, in Italy, I forthwith proceeded to investigate and report upon the property which has been laid before you for purchase. I may here at once acknowledge the kind and complete assistance which was rendered me by the vendors of the mines, who not only laid before me everything in a most complete manner, but also enabled me to visit adjoining mines, so that I might thereby obtain a knowledge of collateral circumstances. The results of my investigation are now presented to you.—GEORGE DARLINGTON."

"The Mines of Bellabio are situated three or four miles from Lecco, a town placed on the eastern branch of Lake Como, and to which railway communication from Milan, Genoa, and elsewhere, will be completed about Oct. 1, the permanent works on the line being already finished, with the exception of about 100 metres of tunnel. The station of Lecco will be nearly 80 miles from Milan, and 160 from Genoa, via Milan and Pavia. From Lecco there is steam communication through the lake to several considerable towns, while Lecco itself is an important place, containing, with the contiguous adjacent village, 40,000 persons, most of whom are workers in iron and copper, and, therefore, men of bone and stamina, who, though not perhaps possessing actual mining knowledge, yet make good miners by a little education and the use of their natural intelligence, which is decidedly beyond the average of workmen. The whole district of Lecco, Bellabio, and the Val Sassiina, which runs northward from Lecco, and upon the western side of which, and between it and Lake Como, the mines are situated, is highly mountainous. The hills rise abruptly to the elevation of from 3000 to 6000 feet, and offer natural beauties of a very high order. The mountains appear to me to result more from alluvial excavations, and from the action of water, than from any other cause. It is likely to be much more lastingly ore-productive. The lower rocks are, doubtless, granitic as may be seen 10 or 12 miles north of Bellabio, and that rock plunges under the porphyritic conglomerate, upon which lies the metalliferous limestone of the Bellabio district. The actual formation to which this rock belongs is not determined, some have stated that it is Triassic; I take it, in the absence of fossils, to belong probably to the Silurian series, and perhaps corresponding to the Aymestry bed of England. It is certain that just above Bellabio Inferiore, a series of shale and slate beds, strongly analogous to the Upper Silurian beds of England, lies conformably upon the limestone, and without any evidence of disturbed action, in some mountainous districts. This should be strong evidence of the nature of the formation. The limestone beds are exposed for a line of ten miles, at least, along the flanks of the mountains, and are generally of a considerable regularity of occurrence: the beds are regular, and evenly parted, and they run from 3 to 10 or 12 feet thick. In the centre of the mountain a line of upheaval occurs, and an anticlinal axis is thereby formed along a line running north and south, on the eastern side of which the beds dip to the east, and on the western side to the west, the angle of which dip being 1 in 8 to 1 in 10. The limestone has an extremely metalliferous character, and apart from the mineral deposits, which will come under our special consideration, seems to be charged with numerous small metallic strings, leaders, and fissures, many of which I do not at present outcrop to true veins; indeed, several places in the northern end of the mountains bordering the Val Sassiina this actually proved to be the case, and valuable mines are opened on them. The strata immediately adjacent to the limestone—the porphyry—are very metalliferous, and further up the valley, where they crop to the surface, they expose some veins, which have formed several interesting mines and ore deposits, which I had the satisfaction of visiting and examining. The conclusion to which I have arrived in respect to the general character of this district, is that it is highly metalliferous, that there is a complete system of lodes in it, but that the regular lodes of the north end of the valley change into beds, beds, and irregular deposits as they go southward; this is more an opinion than a fact, but there are many grounds upon which it may be advanced. It may be asked, why these mines were not previously wrought, for from the boldness of the rocks in which the ore deposits exist they could not have been difficult to find. To this it may be replied, that under the Austrian rule ordinary mining operations could not have been carried on, since they absolutely refused to allow gunpowder to be imported into Lombardy; still much ore has been extracted from time to time by means of chisel-cut levels, but the ground is usually compact and hard, and such work had short limits. Since the existence of Lombardy as a part of the Italian kingdom, no less than 45 mines have been opened in the Val Sassiina, and several others are doing pretty well.

The mines of Bellabio, as before stated, are situated on the eastern flank of the mountain dividing Lake Como from the Val Sassiina, and the levels already driven lie, probably, 2500 feet above the lake. The ore deposit is a bed of limestone, in which veins, strings, lumps, and detached masses of excellent galena are found, and it may be termed, instead of a bed of ore, a plumbiferous bed of limestone; but one in which the lead ore exists in a massive, and not a disseminated condition; but there is this peculiarity about the bed—that it occurs more as a flat vein, interbedded between limestone beds, and conforming with them in its dip, direction, and strike, and many men would term it a flat vein. There is a considerable amount of veinstone associated with the limestone, and some of the samples of ore are not only very rich, but associated with some of the most conical veinstone to be seen—a soft, friable, carbonate of lime, and friable cherty matter, of a most promising nature; blende is rare, but sometimes occurs. The bed varies from 4 to 6 ft., or even occasionally 9 ft. thick; the branches of lead in it are from 2 to 6 in. thick, but they are irregular, and sometimes the ground will promise a large yield to the fathom, and when wrought will only give a few hundredweights, from the ore drying out, or promise but little, and yield 3 or 4 tons. The face of work to-day is essentially different to the face of work a week or two hence, yet there is a general average which is excellent; it has amounted to about 1 ton 10 cwts. to the fathom at Bellabio main level, 20 cwts. to the fathom, and again the contrary. The bed is not so rich, but at least 3000 yards along the face of the mountain; and, as I have induced the proprietors to alter their terms, and place the Laocra Mines, which they were opening themselves to a very considerable profit, along with the Bellabio Mine, and consider the whole as one property, I will hereforth treat the two sets as one, and describe them as such. The Laocra Mine, lying at an elevation of 3000 feet, and the bed dipping westward 1 in 8, it lying west of the anticlinal axis. The continuity of the bed of ore being most complete, and its extension over an area of two square miles (English) certain. I traced its outcrop for about 3000 yards, and carried it in one instance beyond the point where the present proprietors follow the bed. The bed has been opened upon by seven levels, and I cannot say that the general character has been maintained, although you pass to the west side of the anticlinal axis the bed gets more friable in its character, softer, and more conical, and easier to work. There are places on this side where the old men have excavated extensive galleries, and followed the strings of ore to a considerable distance. In each opening yet made, after passing the first few yards, the bed becomes a profitable one to work, and there is not one of the seven openings from which ore might not be profitably extracted. Ores to the value of 23,000 frs. have been sold from 40 metres openings, each metre costing 35frs. to drive, while from about 40 metres more about 35 tons have been sold, the ore being worth about 13l. 10s. per ton in England. The same charge I cannot say is very rich, but it has exceeded 5000 frs. per ton, and as far as the old levels could be cleared it was intended to commence operations upon them. The statements made to me by the proprietors, to the effect that they could set 30 men to work at a profit, without any outlay, is quite correct. The bed of ore is intersected at times by vertical strings and vein leaders, which seem to enrich the bed, they are interesting, and perhaps some system may be eventually resolved out of them. To the north the ore beds seem to be cut off by a fault of undetermined time; at least the bed takes an abrupt plunge down by the side of a fault, and at the same time so vastly thickened. The ore becomes more detached, but never disseminated, and masses of rock containing, perhaps, 5 per cent. lead ore; it can be broken and spalled for 3s. per ton.

The ore bed is said to traverse the mountain, and to crop out on its almost vertical flank overhanging Lake Como, but it being a difficult and dangerous locality to visit, I did not examine it; I was content to see its positive existence over an area of 1000 English acres, leaving the statement made as to the other 1000 acres for after verification, especially as there has been no exploratory work of any kind undertaken on that side of the mountain; but that the bed is continuous for 1000 acres is an ascertained fact. The ground in Bellabio is uniformly close and solid, but it is not hard boring ground, and works with pick and shovel very well; in Laocra it is usually quite easy, its average cost of driving may be taken at 30 frs. per metre—or, say, 2l. 3s. per fathom. Labour is cheap, not exceeding 15s. per diem; hence, other things being equal, the ground ought to be opened for less than one-half of the English costs in similar rock. From the statements made to me, and the information I obtained while at Bellabio, it would appear that the average yield of the bed has hitherto been, for the limited extent of ground driven, about 1½ ton per square fathom; in some instances more than this has been obtained, in others less; from the nature of the circumstances under which the ore exists it is quite evident that this must always be the case. In looking at the whole extent of ground which was laid open before me, I think I may pretty safely say that it will average fully 15 cwts. of clean lead ore per fm. This estimate will, no doubt, be objected to by the proprietors of the mine, as considerably under the true contents of the bed; but I think it is a safe one, and can certainly be maintained by a vast area of ground. No doubt there will be barren patches of ground in the bed; but as the system of working which must be followed in extracting the ore, these will mostly come away with the richer masses. I would rather state 15 cwts. per fm., than any figure much higher; and it must always be remembered that the ore exists more or less massive in the bed, and not disseminated, and that it is to be hand-picked therefrom when the mass is broken away. In order to extract the ore in the bed with the greatest amount of profit, and with the most economical results, I would advise the institution of a system of mining analogous to the long-wall system of coal getting, by first opening out a defined area of the bed by a pair of main roads, and then working back the ground clear, leaving the roof to fall down. The road walls to be strongly built of the poorer limestone—say, 6 feet thick—so that when the first area is wrought out they may serve as leading ways to the next block of ground. I would advise a face of ground not less than 150 fms. long to be at work, the first advance to be also 150 fms.; this would give about 18½ acres under treatment. By such a system as the above, carried out skillfully and neatly, I do not think the fathom of ground should, or would, cost

beyond 30s. or 35s. for extraction. There will be no timber used, and working big, as this would be, the ground should be blasted away with great rapidity. Some of the ground is partially laid open by the present system of levels, but in commencing new operations that system must be abandoned at once, and that I have referred to initiated. Estimating, then, a constant yield of 15 cwts. per fm., and a getting cost of, say, 35s. per fm., we may place the matter as follows:—

YIELD.	Shooting.....	£1 15 0
18 cwts. of ore, at 11l. on spot.....	Spalling, dressing, and picking ..	0 10 0
Getting cost,	Royalty	0 4 0
3 10 0	Surface charges and management ..	0 10 0
	Maintenance of roads	0 1 0
	Sundries, wear of machinery, &c.	0 10 0
	Total.....	£3 10 0

Profit per fathom..... £ 4 10 0
It is evident that the limit of get is dependent upon the scale with which you commence operations, or afterwards extend them, for the bed lies open for fully 1000 fathoms of exposed outcrop. Drawing charges will be nil, but simply ramming to level mouth down a declivity of 1 in 8 to 1 in 10. I estimate that at least 3000 fathoms of ground should be annually wrought. The cost of dressing should not exceed 10s. per ton at most; and I am estimating that English foremen will be required for this part of the operations. The ore is easily dressed, the gangue being almost wholly limestone or calcspar. Barytes occur rarely, and in inconsiderable quantities. The facilities for dressing are very excellent; there is a never-failing supply of clear water in several places, and it has a vertical fall of not less than 2000 feet. From this it is evident that, by means of a turbine-wheel, any amount of crushing-power which may be required may be obtained. The ore should be sent down the mountain side in trucks or shoals, made of 1½ in. plank (say) 15 in. square, the stones to be broken to be not more than 12 in. square at most before being passed down; the angle of dip may be as high as 70° if required; so that it is clear the ore will always slide down by itself. Sheet-iron may be nailed over the inside of the bottom board (say) iron of No. 10 gauge. I would suggest that the dressing-floors be made at the base of the mountain, in the ravine opening towards Sico.

The costs of freights will be as soon as the railway is opened (which is promised in a month hence) about 35s. per ton for an average of summer and winter to Liverpool, and 35s. to Swansea; this includes charges from the mines to Lecco. It would appear to me much more feasible to smelt the ore at the mines; they dress to a percentage of from 75 to 80 of lead with ease, and charcoal is worth on the spot about 2l. per ton. The amount of fuel required to treat a ton of ore would not exceed 1½, while in England it would cost 3s., while freights alone amount to 35s. Labour, with English foremen, could not much exceed the amount paid in England; furnace materials will be at least double. Putting the matter collectively, I would consider the following to represent the relative conditions of smelting:—

LECCO.	Per ton of ore.	ENGLAND.	Per ton of ore.
Fuel excess over England	17s.	Freight	33s.
Furnace material	3s.	Furnace material	15s. 3d.
Labour extra	2s. 2d.		

Balance in favour of Lecco, 12s.

The lead can be sold on the spot and at Milan for about 10s. or 11. per ton in advance of English prices. Thus every way it would appear more advantageous to smelt on the spot than to send the ore to England for treatment. The mines will require no artificial drainage, the bed being situated on the flank of a precipitous mountain, and cropping out everywhere to surface. Water power for crushing may be had to any extent with the greatest ease, and appears to never fail, for at the period of my visit (Aug. 30 to Aug. 30) there had been a season of extreme dryness, and I yet have no hesitation in saying that 100-horse power of readily available waterfall was then running down the mountain side from the two principal streams; the fall is so very rapid and precipitous that it could be economised with the greatest ease and cheapness.

I have carefully looked into the probable amount of capital required to bring the mines into a profitable state, to open out the ground in the manner of working before noticed, and to lay it open for the production of 250 tons of ore per month, to erect a good 20-in. crusher, turbine-wheel, and dressing-machinery, lay down shoots for the ore, and lay rails in the levels, make a new road to the mines (to which the parish will contribute one-half the cost), to make dressing floors, and everything complete for the raising, dressing, and treating 250 tons of ore monthly, could not, with honest management, exceed 6000l.; while, to put up a small smelting-works (I would here use the Scotch hearth), a sum of 4000l. is sufficient, heavy buildings being a most unwise expenditure of money in a climate like that of Italy. For floating capital (i.e., wages, &c.), 5000l. should be most ample. Hence, I consider in every way that your capital is sufficient, for the Bellabio and Laocra Mines are not speculations; you have but to put up your appliances to return the ore, and profit must at once be made. With a return of 250 tons per month, and which return could, with smart handling, be attained in 18 months, I see no reason to doubt the return of an annual profit of from 15,000l. to 20,000l. for a long series of years, or (say) an average dividend of 25 per cent. on your capital of 50,000l. In conclusion, I have to express my sincere conviction that the Bellabio Mines are a paying, honest investment; and after carefully considering every possible contingency, I have no doubt but that, with ordinary proper management, a minimum dividend of 25 per cent. per annum may be had within 18 months of taking possession, and this amount may be afterwards increased. In all the above estimates and calculations I have in no case anticipated the enrichment of the deposit, which has been exemplified in the Laocra Mines by the crossing of the bed by fissures and veins; these have and will produce bunches of lead ore in the bed, but their mode of occurrence is at present undetermined. I must rest my final judgment upon the property on its evident contents, as clearly exemplified over many hundreds of square fathoms of ground now laid open, and I have no hesitation in again endorsing the foregoing observations.—G. DARLINGTON."

"Sir,—From the evidence which has been laid before me in respect to the Bellabio and Laocra Mine, and from the samples of ore and gangue and stones coming from those mines, which have been placed before me, and from the yield of ore which has been hitherto obtained, I have every reason to believe that the Bellabio Mine may be regarded as a safe investment for capital, and is free from many of those speculative elements usually connected with mining; and that, with intelligent and honest management, the property cannot fail to yield an excellent dividend.—JOHN DARLINGTON."

Mr. J. B. Langley.

The CHAIRMAN said, that as the report was very elaborate, it would, probably, be more satisfactory to the meeting if Mr. Darlington would mention the more salient points it contained.—Mr. DARLINGTON, in reply to questions from those present, stated that the nature of the deposit was not a vein, but a bed, from 4 to 9 feet in thickness, and nearly horizontal, passing through a mountain, or, he might say, a pair of mountains. There was a face of some 3000 feet, and throughout that distance numerous openings had been made, some by the ancient Roman miners, and some by the present proprietors. It was simply a bed of limestone, in which nodules, branches, and strings were met with.

The CHAIRMAN said that, if he understood Mr. Darlington correctly, it was a horizontal lode instead of a vertical one, and that it also possessed the advantage of being very regular.—Mr. DARLINGTON repeated that it was a bed of limestone, in which the veins and branches were thickly interspersed; the country was also limestone. The average obtained from the workings was about 35 cwts. per fm.; but in order not to over-estimate, he had taken it at one-half that quantity, and put it down at 18 cwts. per fm. The getting will cost from 2l. to 2½ l. per fm. You might travel along the face of the mountain and trace the lode for fully 3000 feet. With regard to the extent in the other direction, the deposit was perfectly regular to the fault, then the lode thickens out, and becomes poorer, being ultimately lost. Levels had in many places been driven in 70 ft., and the yield was constant. The ore exists throughout in a more or less massive state, and could be readily hand-picked; he made this remark, because otherwise 35 cwts. of ore disseminated in a 9 feet vein would not attract much notice. He considered the best way to work the deposit would be by the long-wall system, in the same way as a coal seam. He estimated that upon a yield of 250 tons per month, the total charges would not exceed 3000l. per annum, and there would be left a profit of 6l. 10s. upon every ton treated. This was estimating the value of the ore at 11l. per ton.

Mr. LANGLEY understood that this was upon Mr. Darlington's very low estimate of 18 cwts. per fathom, and that they might, very probably, far exceed this.—Mr. DARLINGTON said that they certainly might, but he preferred to make his estimate upon the 18 cwts. per fm., which he felt sure they would obtain. When they got in a few yards the lode was quite regular, though just on the face it was less so, owing, probably, to it having weathered. At one place it was worth 6 or 7 tons per fm. He had mentioned estimating the value of the spot, which would be subject for future consideration, and carriage from the mines to Liverpool would be 1l. 15s. per ton, and it might prove that smelting on the spot would be more profitable. He proposed that they should adopt the Scotch hearth process, which uses more labour, which was cheap, and less fuel, which was comparatively dear at the mines. He estimated that the fuel would not exceed 12s. per ton of lead smelted.

The CHAIRMAN understood that they would require no power to drive the mines, and that the only machinery which would be necessary was that for crushing.—Mr. DARLINGTON said that that was the case. He thought 6000l. property laid out to put the mine in good order for raising 250 tons per month. The cost of driving was from 1l. to 1½ l. per metre, and he could not see how they could raise 250 tons per month should not be raised in twelve months from the present time. The lead appeared to average from 7 to 8 ozs. of silver per ton of lead.

Mr. LANGLEY said that the assays showed 79 per cent. of metal, and a small percentage of silver. He regarded the percentage of lead as of the greatest importance. He thought the more gratifying fact appeared to be that there was as great a degree of certainty in the affair as they could possibly have in an enterprise of this nature.

It was then resolved, on the proposition of Mr. G. F. LASCAR, seconded by Gen. SHERRE, "That this meeting having heard with satisfaction the statements of the gentlemen interested in the proposed Mining Company of Italy, and the reports of Mr. George Darlington and Mr. John Darlington, of Minera, hereby expresses its satisfaction therewith, and cordially recommends the undertaking as worthy of public confidence. That this meeting also cordially approves of the manner in which the matter has been publicly laid open to investigation and criticism."

Mr. DARLINGTON observed that there was another instance of a similar deposit, which was at the celebrated Montepiù Mines.

Thanks were then voted to the Chairman, and having been acknowledged, the meeting separated.

NOVA SCOTIA LAND AND GOLD CRUSHING AND AMALGAMATING COMPANY.

A general meeting of shareholders was held at the London Tavern, Bishopsgate-street, yesterday.—Mr. G. LATHAM BROWNE in the chair. The usual preliminaries having been disposed of, the report of the directors, of which the subjoined is an abstract, was submitted:—

With regard to the progress since the commencement of active operations, the report states that at the earliest moment arrangements were entered into for the construction of three steam-engines, with stamps and amalgamators, which were completed and dispatched within the shortest possible time, and arrived in the colony partly in the month of April, and partly early in May. Capt. Ople (the company's superintendent of practical operations), and a small but effective body of experienced Cornish miners, together with four working engines, were engaged and dispatched to the colony early in the spring.

One of the engines, with its attendant machinery, has been dispatched to Renfrew, and is now on the ground ready for erection as soon as the most eligible spot has been determined on, and the engineers have finished the erection of the engines in the other districts. A valuable selection of ground has here been made, consisting of several claims of the largest class in one compact block; and, as numerous productive lodes are known to pass through them, Capt. Ople has organised a body of men to "prospect" the ground, so as to fix the best position for a regular shaft. The managing director, writing on the 6th inst., and speaking of the works of a neighbouring company, says—"From our area here, known as the 'Frepper' claim, 13 tons 8 cwts. of quartz lately yielded 50 ozs. of gold. The lode is over 10 in. thick, and runs through the company's set, although at some distance from the claim referred to. Our men are now prospecting for this lode, and for others larger in size, which in some instances have produced from 1 to 1½ ozs. to the ton." From another company's claim, in the first week of the month, 8 tons of quartz gave 32 ozs. of gold. The prospects, therefore, in this district are highly favourable.

A survey of the Tangier property, with a view to its being laid out, and here the

company, having secured in addition to their freehold some very valuable mineral sites (not inferior, as a whole, to any in the province), have begun and nearly completed the erection of an engine, with stamps, &c., and commenced mining operations with vigour. Two shafts have been commenced, known as Annand's and Wier's, sunk, according to last advices, to a depth of 25 ft., from which about 50 tons of quartz have been extracted by the time the crabs are ready to go to work.

At Sherbrooke, successful mining operations have been carried on for a long time. The company's crabs, which formed part of the original purchase, has been put into complete working condition, and some important improvements have been made in it, so that on a trial of its merits it was found to yield a very small amount of waste, and to be more effective than any of its competitors. The managing director, speaking of this district, says:—"We have been fortunate enough to secure several new claims on what is known as the Cummerbund lead, 600 ft. on the run of the vein, at nominal prices, which are likely, besides giving employment to our miners and crusher, to prove highly remunerative. The 600 ft. cost about \$50 before we prospected the ground, for which, after the lead was found and yielded 1½ oz. of gold per ton of surface stuff, the superintendent writes me he could get \$4 per lb. (equal to about \$2400 for the whole). A very rich discovery has also been made on the 'Brown' lot, owned by the company; the vein is very thin, not over 1½ in., but exceedingly rich in visible gold: 300 lbs. of quartz taken from this vein at a cost of \$45 produced 5 ozs. of gold at the crusher, worth \$100. Shafts are being rapidly sunk on both the Cummerbund and Brown leads, and if the prospects continue favourable, we will soon be able to profitably employ a large number of miners on these claims. I have also secured five additional areas, class No. 1, on the celebrated Blue lead, at \$10 per acre. Several beautiful specimens were lately taken from the Leslie claim on this lead, one of which was yesterday sold for \$130." Again, Capt. Ogle says:—"Blue Lead: The shaft is sunk on this lead to a depth of 66 ft., and the lead still improving in character; it is 5 in. wide, but when we resumed the sinking of it eight weeks ago it was only 2 in. In taking it down since I last reported it has produced larger signs of gold than have been seen before, although not rich enough yet. I would state for our encouragement that the Olive Branch Company, which is next to us on the lead, took down their last week, and 9 tons of the quartz produced more than 100 ozs. of gold. I feel confident that this claim of ours will ultimately prove rich." Thirty-three ounces of very fine gold have been recently received from the managing director, being the first remittance of the product of the company's crabs at this place. At Wier Harbour, which forms the fourth and last of the company's districts, the fourth engine and machinery have been erected, and will commence crushing as soon as a sufficient quantity of quartz has been broken. Several valuable sites have been selected, covering about 16 acres, occupying the very best position in the district, and operations have been commenced. The managing director, under date Aug. 6, says:—"At Wier Harbour, on the same range as the company's claims, a quartz reef, 6 ft. wide, was lately struck at a depth of 65 ft., which is said to have averaged 4½ ozs. to the ton." The directors attach much importance to the fact of their having secured the valuable services of Mr. William Annand, M.P., and late Financial Secretary to the colony, as their managing director. The intimate knowledge of the province possessed by this gentleman, and lately held by him, is the best guarantee for its interests being well protected. It is a satisfaction to the directors also to know that Mr. Annand has the advantage of the co-operation of Mr. Benjamin Wier, late member of the Colonial Legislature, and occupying a high position as one of the oldest merchants in the province, as a local director. The directors add that nothing has been spared by them to render the company's enterprise one of eminent success; the surest path to which is by the skillful and effective means placed at their command by the capital of the company and thoroughly competent agents and labour. Their efforts will not be without reward they entertain no manner of doubt.

The CHAIRMAN said that, according to the Articles of Association, they were compelled to hold a meeting within twelve months from the date of the registration of the company. As it happened, however, that the company was registered on Sept. 1, 1862, and was brought before the public until a month or two after, and the whole of the capital was not subscribed until December, so that they could not get to work until the end of the year; indeed, it could scarcely be considered to have commenced then, for the machinery did not reach the colony until about May, from which time the work of the company at this mine only dates. They should also make further allowance for the time necessary for the erection of machinery. In consequence of these circumstances they had nothing further to state than was contained in the report submitted. By adjourning the meeting, as it was proposed to do, they would have six months' mining to report upon; and as Mr. Phillips had promised to leave on the 19th of the present month to visit the mines, he believed they would then be able to report fully to them and announce some large remittance, and not only "80 ozs. on the way," and expected to arrive in a few days.

It was then resolved that the meeting be adjourned until Dec. 16, and thanks having been voted to the Chairman, the proceedings terminated.

GREAT NORTH DOWNS MINING COMPANY.

A general meeting of adventurers was held at the company's offices, Austinfrans, on Thursday (Mr. J. E. MATHEW in the chair), when the accounts showed a debit balance of 2488½ 12s. 8d. A call of 10s. per share was made. The following report was read:—

Sept. 9.—To-morrow being the day appointed for the general four-monthly meeting, I beg to hand you the following report of the progress made in the past four months, with the present prospects of the mine:—Vivian's engine-shaft is sunk to the 57, on the course of the lode (Vivian's), and have extended the said level about 3 fathoms east and west; the lode in these drivings averaged from 3 to 4 feet wide, composed chiefly of quartz, capels, muddle, and copper ore, yielding saving work, of a kindly appearance. We shall at once cut a pit at this level, having the shaft ceased down and footway fixed, and as soon as the pit is completed we shall fix a standing drawing-lift, and commence sinking the shaft to a deeper level without delay, as we consider the sinking in this part of the mine to be of the greatest importance, so as to get nearer the junction of the south lode, where there is good reason to expect the lode will become more productive, it being now very porous, and of a congenial character for producing copper ore. We also propose putting out a cross-cut south on the cross-course, to intersect the Pendaves and other lodes at this level, which is from 20 to 25 fms. to drive, to ascertain their value, having been very productive throughout the mine at a shallower depth. The lode in the winze sinking below the 47, east of Jenkin's shaft, is 2 ft. wide, worth 5½ per fm. Jenkin's shaft is also sunk to the 57; the lode in this sinking averaged about 3½ feet, and worth from 5½ to 18½ per fm. We are driving east and west of the same, where the lode is 3 ft. wide; in the west end it is worth 2½ per fm., and east 3½ per fm., and likely to improve in No. 2 winze, sinking below the level of Vivian's engine-shaft. It is 2½ ft. wide, worth 8½ per fm. In the bottom of the 60, west of River shaft about 25 fms., we have sunk a winze 3½ fms. below said level, where we met with water, and have been obliged to suspend it. We have stopped away the east side for about 5 fms. long; it averaged about 3 ft. wide, and worth from 10½ to 15½ per fm. The winze is again drained, and have commenced sinking the same, where the lode is worth 10½ per fm. No lode yet intersected in either of the cross-cuts south of Brown's shaft at the 30, and Bawden's shaft at the 40.—New Brian Lode: Job's shaft is now cleared to the 65, and the shaftmen are engaged in cutting a pit, and also dividing and casing said shaft for descending purposes. We have now a shaft in the pit about a fortnight from this time, when we shall commence sinking the shaft with all possible dispatch, in order to get down to another level, to drive under the ore ground stopped away by the old workers for about 25 fms. in length, so deep as the shaft is sunk, where the lode is, so far as can be seen, from 6 to 15 in. wide, a good branch of ore, worth on an average about 16½ per fm. After this the ground rises up about 3½ fathoms to the bottom of Bawden's shaft, and then continues stopped away east at a level for about 40 fms., where the bottom is choked with rubbish, the ground above being all stopped away, which shows it must have been productive, and we have reason to believe that when this bottom is cleared other branches of ore will be found. We are now engaged in clearing from the bottom of Bawden's both east and west, but our progress is rather slow, owing to so much mud having accumulated, and a very small space to bring it away. We are also busily engaged in getting a lift to work in Cock's shaft, and hope to complete it by Saturday next, when we shall go on clearing and forking, and hope soon to reach the bottom. Old reports say there was a good course of ore left in about this shaft by the former workers, which we hope will soon be brought to light. Now, taking this part of the mine so far as seen with the ore ground about Job's shaft, and the lode stopped away for such considerable extent, with the other favourable indications in the different parts of the mine, we consider our prospects more cheering than for some time past, but it must be in mind that the returns will not be fully realised before we have sunk and opened another level below the old men's workings on the New Brian Lode. We calculate it will take four months to sink Job's shaft to the 75.—T. TRELBASS.

GREAT BRIGAN MINING COMPANY.

A general meeting of adventurers was held at the offices of the company, Austinfrans, on Thursday, Mr. J. E. MATHEW in the chair.

After the usual preliminaries the accounts were submitted; they showed a debit balance of 2983½ 15s. 8d. A call of 10s. per share was made.

The following report was read:—

Sept. 9.—Harvey's engine-shaft is now sunk to the 72, and have extended a cross-cut both north and south about 3 fathoms. In the south end we have intersected a branch about 9 in. wide, composed of prisms and rock, with a little blende. We calculate we have about 2 tons, more to be taken in the under the shaft. In the north end we have also intersected a branch in the north cross-cut, dipping towards the lode; these branches are letting out a quantity of water, and have drained the 61 west to the present end. We have also about 2 fms. more to drive here to intersect the lode, and from the appearance of the ground, which we consider favourable, we hope to find the lode productive when intersected, which we expect will take place in about three weeks from this time. The 61, both east and west, is for the present suspended. The east end is extended east of the above shaft about 45 fms.; in the last 18 fms. of this driving the lode varied from 1 to 3 ft. wide, worth from 5½ to 15½ per fathom. The west end is extended about 30 fms.; for the first 25 fms. of this driving the lode was small and unproductive, it then became about 2 ft. wide, worth 15½ per fm., and continued on to the present end, where the lode is 2 ft. wide, producing good stones of copper ore, of a kindly appearance. We would recommend the driving of this end to prove the western ground, where the lode is all taken away for a great length over the 42, and have no doubt was very productive. When the lode is intersected in the 72 we would also recommend the driving both east and west, to prove the ore ground laid open in the 61 above. The 49 is extended to the east of cross-course shaft 44 fms. The lode in this end is at present about 1 ft. wide, containing spots of copper ore of a kindly appearance. Tom's shaft is sunk to the 49, and we are now engaged driving east of the same; the lode in this end is 14 in. wide, yielding stones of copper ore. The lode is extended east of Trelease's shaft 16 fms.; the lode in this driving has varied from 1 to 2½ ft. wide, yielding a little ore, but not of much value. This level is extended west of Hicks's winze 9 fms.; the lode in this driving has averaged about 30 in. wide, and worth about 15½ per fm. We hope to communicate this end to Trelease's shaft in about three months from this time, when we shall push on the driving east towards Highburrow shaft as fast as possible; and when this level is communicated it will enable us to discharge the water from the latter shaft to Harvey's, and give us power to sink the eastern part of the mine with our 56-in. cylinder engine, we are about to erect, to a considerable depth, and give us part of the mine a fair trial, which we expect good results. We are getting on with the cutting down of Highburrow shaft at the different levels, to receive the pitwork, very well indeed, and expect to make it complete in about a fortnight from this time. The lode in the winze sinking below the deep adit level is at present about 20 in. wide, mixed with ore throughout, and worth for the latter 4½ per fm. We expect an improvement here shortly; the stratum is good, carrying small branches of copper ore dipping towards the lode. We are also driving a cross-cut south of this winze, in the deep adit level, to prove if there is not another lode standing in that direction, which we are led to believe there is from the bearing of the Saturday lode in Wier's town, which is very productive in the latter mine; and should we succeed in cutting the same lode in our shaft, it will enhance the value of our property here. We have taken out the Louisa 36-in. engine, and are now engaged in taking down the engine-house, and shall commence building the new one here at the end of the present week. The foundation is all taken out, and we commenced to build at once, but are obliged to wait for the bottom stones in the old house. We calculate to get the engine-house up, and put the engine in working order, by the end

of October. If it is possible to be executed sooner it shall be done. You may rely this work will be done with the utmost dispatch to prove this part of the mine, as we consider it one of the best speculations in the whole run of these mines, for reasons which have been stated many times before, and with which you are already acquainted, therefore require no further repetition.—T. TRELBASS, J. EDWARDS.

WEST CARADON MINING COMPANY.

A general meeting of shareholders was held at the company's offices, Broad-street-buildings, on Wednesday,

Mr. RICHARD HALLETT in the chair.

Mr. DUNSFORD read the notices convening the meeting, and the minutes of the last were read and confirmed.

A statement of accounts was submitted, from which the following is extracted:—

Mine cost, March to June	£4842 15 0
Merchants' bills	1729 5 1
Dues	332 10 3
Copper ore sold	£2512 13 11
Carriage	301 5 11
Sundries	25 0 1
Interest account	9 10 10
Income tax	251 11 3
Balance (loss)	£704 14 4

The balance of assets over liabilities was 2320½ 11s. 3d.

The report of the agents was read, as follows:—

Sept. 7.—In the 155 west, on Menadue lode, since the last meeting we have driven over 10 fms. of good ore ground, which has produced on an average 4 tons per fathom; the present end is not looking so well, but from its appearance we think it will soon resume its former value. The slope in back of this level will produce 3½ tons per fm. We are driving west from the trial winze, which is down 10 fms.; the lode is not rich, but is presenting very good appearances; this end is not within the shoot of ore referred to in the 155 by 30 fms., but in order to prove if it is lengthening or not we have commenced a winze about 10 fms. in advance of this end, down 3 fms.; the same will produce full 1½ ton per fm.; this speaks well for the bottom of the mine, and we believe when this mine is prosecuted at a greater depth a valuable mine will be again discovered, judging from the results which have attended similar indications and changes in South Caradon. The 155, on Allen's, or main lode, is still producing good stones of ore, but not to value—too promising to abandon, yet too poor to explore. The winzes referred to on Dunstan's lode in our last report, which we were then compelled to suspend in consequence of the water, is now drained by the 116, and set the same to sink, which will produce 2½ tons of ore per fm.; should this continue, we shall open up a good piece of ground. The 116 fathom level end is poor, but this end is not driven so far east as the winze by some distance, but having left down the water we are daily expecting an improvement, which has followed generally in this mine under similar changes. We are still continuing to drive the 90 cross-cut south from Allen's lode, but have not intersected any lode since last meeting. We have suspended the 50, on Vivian's north lode, being near the boundary, and put the men to drive the 60, on Vivian's south lode. I would here mention this end is in a good ground throughout our set west, and the driving of which may be regarded as a good speculation.—In fact, it is much improved since we resumed it, worth 1 ton per fm. In driving this end 20 fms. we shall reach Hallett's cross-course, near which we have had our best courses of ore, and we see no reason why on reaching this point it may not be attended with the same success; the back over this level has been taken away for 6 fms. high, and is suspended for want of ventilation, but in order to resume the working we have set a winze to sink below the 50; when communicated it will enable us to set several tribute pitches, and perhaps lead to further discoveries. The 35, on Menadue lode, which we reported for the meeting was then poor, since then it has been worth 2 tons per fm., and will now produce full 1 ton, with good appearances. The 17, east of little cross-course, on Pryor's lode, is producing some fine ore; this is a new winze nearly 2 ft. wide, and from its appearance we are justified in expecting an improvement shortly. We have cut pit, and done all necessary work since the last meeting, as well as sunk 3 fms. in Pryor's shaft; we are sinking in the country, the lode still standing to the south, and it is not our intention to cut into it until we reach the next level, which will be 64 fms. from surface. We are now cutting through a lode first intersected in the 17 cross-cut, south from Pryor's; so far as we have seen, it is composed of a beautiful gossan; we shall shortly be in a position to open it, and if appearances go for anything, after it has lost the influence of the cross-course we may expect something good. In conclusion, we do not see we can recommend anything more to be done just now. The sinking of the sump-shaft, or commonly called Elliott's, will have considerable effect, as we have a good discovery at the bottom of the mine; also the resuming of the sinking of Hallett's, after we have seen a little more of the lode in the 60, on Vivian's south lode, as it will become a question on which lode this shaft will be sunk, should Vivian's prove good. We shall sample at our usual time (this day) about 400 tons of ore. You will observe we are trying every object in which we consider there is a chance as fast as we can judiciously, and it is still our united opinions that time is only required to make discoveries if this course is pursued. We continue to spend about 2000 per month in exploring and merchants' bills in the western part of the mine.—FRANCIS PRYOR, WILLIAM JOHNS.

The CHAIRMAN said the only observation he felt he made upon the report was that it was generally of a much more favourable character than for some time past. As regards the accounts, the statement just submitted included four months' cost, showing a loss during that period of 700½, which was somewhat less than the amount incurred in the work of operations.

Mr. T. NICHOLLS did not think it was possible to spend money in a better way. From the indications presented, he believed that West Caradon would soon again become a valuable mine.

The report was received and adopted, and the accounts passed and allowed.

The CHAIRMAN, in answer to a question from Dr. McCree, stated that at the present time three members constituted the committee of management, and the amount of remuneration they received was 1000 a year.—Dr. McCree did not see that a committee of management was of any service, and stated that he would certainly support a committee, for his experience told him they were of the greatest usefulness in the conducting of any mine.—Mr. YOUNG suggested there should be a proper qualification, and that the committee should, as hitherto, be composed of five members.

The CHAIRMAN said he would not submit to his hands being fettered in any way; rather than do so he would at once retire.

Mr. WILKIE had no doubt that a money qualification was a good thing, but it was far more desirable to have a gentleman qualified by abilities to occupy a position upon the committee.—Mr. HADDOCK did not think it was competent for the present meeting to discuss such a question.—Mr. YOUNG fully agreed, and stated that he was quite willing that the matter should be considered at the next meeting. He wished it to be fully understood that he in no way disparaged the usefulness of the committee, for no mine owed more to the committee than did West Caradon.—It was then decided that the question should be considered at the next meeting.—Mr. WHITTING proposed that Mr. W. Kemp Evans be elected a member of the committee, in the room of Mr. Harris, who had become disqualified.—The resolution was seconded by Mr. YOUNG, and put and carried.—A vote of thanks to the Chairman terminated the proceedings.

TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market is manifestly improving, although it does not appear that so much business has been done as anticipated from the tone of the market last week. Still there has been a fair amount of business done in the aggregate. From the enquiries which are still being made for most of the leading progressive and dividend mines, there is every probability of considerable transactions in prospect. DEVON GREAT CONSOLS and SOUTH CARADON have been in request, but found scarce.—SEXTONS continue quiet, at quoted prices.—CLIFFORD and NANTOLLS have been in fair request at former prices.—NEW WHEAL ANTHAS are a little more in request, and done at quoted rates.—WHEAL BULLERS have changed hands at nominal prices.—EAST CARN BREA has been dealt in at lower rates.—SOUTH TOLGUS are offered at less, but buyers scarce.—TINCROFT and SOUTH CROFT have been more in request, and prices slightly improved.—WEST CHIVERTON continue in demand, at higher rates, with an upward tendency.—WHEAL AGANS are slightly lower, and not so much in request.—GREAT SOUTH TOLGUS have been dealt in, and more freely enquired for.—WEST TOLGUS have declined, and heavy, at lower rates.—EAST GRENVILLE and WHEAL GRENVILLE have fluctuated, but several transactions in each have been effected.—ILLOGANS are in request, at nominal prices.—NORTH ROSEKENS have been in request, at nominal prices.—NORTH TREKENS find buyers at minimum figures.—NORTH GRAMBLER and WHEAL CROFT have been dealt in at quoted prices.—CARN CAMBORNE have also been dealt in.—WHEAL KITTS (St. Agnes) have improved, and freely sought for.—HARRIETS have been in good request, and advanced considerably, consequent on a reported improvement.—EAST ROSEWANNES continue quiet.—POLMEARS are in request, at fair market prices.—UNITTS enquired for, at buyers' prices.—GREAT WHEAL FORTUNES have been in better request, and prices slightly advanced.—EAST WHEAL LOVELLS are in good demand, at higher rates, and likely to further advance.—RABBIT and GRITLES and WHEAL GRITLES have been in fair request at former prices.—MARGRETS are in request at slightly improved rates.—GUILKINS have changed hands.—PROVIDENCE and MARGARETS are rather quiet at quoted prices.—TREMATENS are enquired for at lower prices.—EAST CARADONS have not fluctuated during this week as previously, but continue to be freely dealt in.—MARKE VALLETS have advanced, and likely to maintain the improvement.—GLASGOW CARADONS have been freely dealt in at improved prices, but have since receded.—GOMANENS and LUDCOTTS were in good demand during the early part of the week, but left off weaker.—MARY ANN, TRELAWEY, WEST CARADON, and HERODSPOOT, continue quiet at quoted prices.—NEW WHEAL ANTHAS are also heavy for sale.—DRAKE WALLS and EAST RESELS are in better request improved rates.—WHEAL EDWARDS show a tendency to move.—GOMANENS: They have intersected three branches in the cross-cut, each highly mineralised, and carrying rich black and grey copper ore. On one of the branches they are driving, for the purpose of determining its character. They are daily expecting to cut the lode towards which those droppers are tending, and expect to find it productive.—EAST CARADON: The south lode is opening out very encouraging and productive, and other places have improved. The 50 east, on the counter, is worth 10½ per fathom. The 60 east has been resumed, and still worth 6½ per fm. They are still cross-cutting south, to ascertain if any more of the lode is to be met with in that direction, and the ground is very favourable. The 70 east is worth 12½ per fathom; the 70 west, 15½ per fathom; the new lode, in the 70 east, 8½ per fathom; the 70 west, 15½ per fathom; the south lode, in the 60 east, 18½ per fm.; and the 60 west, 15½ per fm.

CONKURIA TINI: The 70 cross-cut north is progressing satisfactorily, and, from the change of ground and increase of water in the end, they expect to intersect another lode daily. The 70 east continues large, and yielding some rich work for tin. Although the lode was slightly disturbed by some cross branches, the present end is opening out remarkably well. The lodes east and west of the flat-roof and Trevelyan's shafts continue large and productive, and the mine, upon the whole, is looking more encouraging as the operations progress and the levels are explored.—GREAT BRIGAN: The prospects are considered very encouraging, more especially from the fact that in the adjoining mine (Wheal Rose), where they are developing a lode worth at least 500 per fm., within about 60 or 70 fms. A cross-cut is now being driven from the adit level to intersect that lode, which is expected to be cut in a few fathoms driving.

CLIFFORD is reported to have considerably improved within the last fortnight; and, notwithstanding the late accident, where a long run of ground had collapsed above the 220, there is every reason to hope the run will not be found so extensive as at first apprehended. In a circular to shareholders the extent is stated about 100 fms. long, and every possible exertion is being made to clear and secure the level, which will take about four weeks to accomplish, and that it will not affect the present rate of dividends.—WHEAL HARRIETT is reported to have improved in the bottom of the 100, and worth full 800 per fm. for tin. This improvement, with the scarcity of shares at recent prices, has created a great rise in them.—WHEAL UNITT is reported to have improved in the 40 west, which is now yielding 14 cwt. per fm. The lode in the shaft is about 18 in. wide, yielding some good saving work, and improving. There

is also a good lode in the back of the 30, whilst other places are looking better; upon the whole, the mine is improved.

EAST WHEAL LOVELL is represented as still improving both in the shaft and in the back of the 26. The tin sold on Thursday last realised 418½ 19s., being the produce for the month. A further sale is anticipated previous to the meeting, which is convened for Tuesday next, when a dividend of 5s. per share is expected to be declared, after payment of which a credit balance of about 2500 will be carried forward to the next account. ST. AUSTIN AND GRITLES.—The operations are now being carried on in the adit and deep adit, which is 40 fms. from surface. In two shafts in course of sinking, and now down 6 fms.; they have a very promising lode for tin, and improving over the last. At 16 fms. from surface they have a lode worth 8½ per fathom, and the deep adit is being driven to come under those productive places. During the last fortnight they have raised more tin than for the previous twelve months. All the operations being in whole ground, they are looking forward to a profitable mine for years to come. A general meeting was held on the 31st Aug., when the accounts for the twelve months showed a debit balance of 2537½ 8s. 8d. By relinquishment of shares, the mine is now divided into 792 shares.

EAST ROSEWANNES is represented to be looking better, and the ground in the shaft more favourable for sinking. The lode improved in the shaft about a fortnight since, and maintains its value, being still worth 14½ per fm. The 65 west is looking better, and there is a good lode in the sump-winze. Other places are also looking well. They have resumed driving the 12 east, on the north lode, which is improving, and producing some good work.—NANTOLLS: The discovery made here some few weeks since continues to look remarkably well, and holds out every promise of a permanent and productive mine. In taking down the lode this week all that was anticipated from the last operation of the lode fully realised, and although the work has not yet been completed, it is estimated at 1 ton per fm., which being rich for silver, high prices are expected. They purpose next week to open east, where the lode is equally large and valuable. JAS. LANE.

From Mr. JAMES CROFTS:—The market is exceedingly dull for most shares, and the exceptions fewer than usual. CLIFFORD AMALGAMATED: Accident has had the effect of depressing these shares also, but no safer copper mine share can be bought, and held as an investment. EAST GRENVILLE yesterday advanced, upon the fact that an engine and boiler had been purchased for the mine excepted cheap. The mine also looks well, and opinions universally in favour of the share coming very valuable. There were a few sold at public sale yesterday much below previous quotations. WHEAL CROFTS are dropping, but probably from the influence of market operations, they being a favourite stock for jobbing purposes—said to buy. Excellent news has been received during the week from PANT-Y-TIDWY, CEFN CLICEN, MINERA UNION, and THE TWELVE APOSTLES AMALGAMATED MINES, which has led to business, chiefly with the present holders of the two former, who are increasing their interest. It should be stated that the Twelve Apostles has begun, since March last, the payment of interest on the capital of 5 per cent. per annum, which entitles the mines to be placed in the dividend class. PANTRE LYONNASH is sinking to reach the lode as expeditiously as possible. CENTRAL MINERA, from its surroundings of Minera Union and The Apostles, offers first-rate chances of success. A speculator in Welsh lead mines on a large scale on the market is silently acquiring these shares, but very few offer for sale, and business consequently is limited. The fact, however, is ominous of success sooner or later, but perhaps not before long. All these shares are seriously and earnestly recommended. EAST BRIGAN is paying 15 per cent. in dividends per annum at present cost. The 110 fm. level is the chief point of interest, and should there be no good lode cut there, of which no doubt is expressed, the share will rise considerably. NANTOLLS have apparently for the present touched their highest point. The decline in value within the last ten days was rather unexpected, but is merely a sequence of a rapid rise, as customary in all such cases, the shares having been at one-fourth their present market price only two months ago. The mine, however, has strong merits. The market for Cornish lead concerns, notably the Chiverton, has been active for some time. At CHIVERTON (in 3000 shares) a meeting was held on Thursday, and after a very considerable augmentation of machinery, all paid for, there will be large funds in hand; consequently, this is a rising stock. EAST CHIVERTON is a new mine, with reputed lode, subject to the usual explorations, and success is expected to result. It has been lately been written that a large number of shares in Carr's mine have been taken at the approaching account (the 16th), when their market value must probably be influenced, the "bear" being rather numerous. But it may be remarked that this peculiar business has very much lessened since the late monetary reverses, and it is doubtful if it will ever again attain that height of popularity which characterised it for a long period, but particularly during the WHEAL LUDCOTT and EAST CARADON mania. On the whole, the market is a buying one.

FOREIGN MINES.

ALTEN AND QUENANGEN.—C. Trelease, Aug. 20: Raipas: The shallow foot slope looks rather better, where the lode is 3 ft. wide, about half of which is composed of good ore work, full 2 tons per fm. Near this working there is an old winze, which we propose to re-open, that will enable us to clear the shaft, which is deeper than at present. The south-west lode, which is divided into two parts, continues to yield remunerative returns, with favourable signs. The small vein of ore in the 20 west is disordered by a change of strata, and as there is but little chance of a speedy improvement we have decided to suspend it. The 30 is nearly dry, and we hope to resume the level, south easterly, in a week or two.—Old Mine: The slide in the 10, alluded to in our last, has heaved the lode; we are nearly through it, and do not expect the other part of the lode is far off, as we have some kindly ore branches in the end already. The slope in the back of this level yields from 3 to 4 tons of ore per fm. Further north we have lately been rising above the old stopes, where the lode is 3½ ft. wide, composed of quartz, chloride, and muddle, with ore work intermixed. In the 10 fm. foot slope, north of Pederson's rise, the lode is nearly 2 fms. wide, with a more quartzose matrix than usual, but it still yields from 3½ to 4 tons of ore per fm. In No. 1, slide stopes north the lode continues about the same size, and yields from 3 to 3½ tons of ore per fm. In the working south, from the top of Pederson's rise, the lode is from 10 to 11 ft. wide, and against the footwall it has improved in the past fortnight, there being now a promising leader of ore work, 2 ft. wide. There is no material change to note in the 5 fm. level foot slope, where the lode is large, with branches of good ore ground irregularly intermixed. We have recently begun a level to go north from these stopes in order to lay open the ground more advantageously for future operations. Other parts of the mine look just as before. In Carr's adit the ground is a little easier. At the United Mines there is but little change to note. The lode at Ward still looks promising, but does not yield so much ore as when last reported.—Quenangen, Lode E: In the 10 west the lode varies from 1 to 2 ft. in width, yielding 2½ tons of ore per fm., the chief part of which consists of the yellow and purplish, of fine quality. In the roof of this level the lode is variable in size, but the ore is of a rich description. We have begun sinking below the deep adit, east of Saxe's shaft, where the indications are highly promising, the lode being composed of good work throughout, full 2 tons per fm. All other points here, as well as the lode further east, are looking well, and we are working with a view to profitable returns, and look kindly. At C mine the new adit progresses very satisfactorily, and the lode recently intersected is kindly, with yellow ore disseminated throughout the matrix, though it is not so rich as when first met with. Every exertion is being made to push on the most important points, and at present the prospects of the mine are highly encouraging.

ALAMILLOS.—Wm. Nute, N. C. Morcom, Aug. 31: San Lino shaft is holed to the 3d level, and the men are now cutting a pit. In footway shaft, below the 2d level, the ground is more favourable for sinking—lode unproductive. The lode in the old winze is worth 1 ton per fathom, and improving as it goes down. We are of opinion that this winze will open out a good piece of ore ground. San Jose shaft, in the 3d level, has become very troublesome for sinking, having to contend with water. In the 3d level, west of San Lino shaft, the lode is 1½ ft. wide, but not to value. The lode in the 3d level, east of San Juan shaft, is worth ½ ton per fathom; it is small at this point, but improving.—General Remarks: The engineer has commenced the erection of the first engine. The house for the second is building with great rapidity. The winze is being put up at San Lino shaft, and will be completed in a day or two.

PORTGIBAUD.—W. H. Rickard, Sept. 2: Pranal: Nothing new has been done either in the 90 or 70 metre levels for the last week, the water being in, consequent on our changing the pump-wheel, which was completed on Saturday evening last, and is working very well indeed; we hope to have the bottom of the mine dry again by Monday next, if all is well. The 50 metre level, driving north on Susan's lode, yields ½ ton of ore per fathom. The 300 cross-cut, south of Susan's lode, the 3 metre level, is unproductive. The same level south, on the western part of Susan's lode, yields ½ ton of ore per fathom. No. 1 winze, north of cross-cut, in bottom of the 8 metre level, yields a little ore that will work on tribute. We have in this mine two stopes in the back, and one in the bottom of the 8 metre level, yielding ¼ ton of ore per fathom each. We have also set eight tribute pitches at low tributes. The two tribute pitches at Barbecot and at Broc are poor.—Miche: We have a change of ground in the 100 cross-cut east from a hard cap, spotted with lead ore, to soft clayey ground, very speedy for driving through. The cross-cut west, at the same level, is almost much changed. At the 50 cross-cut the men have done nothing towards water through the lode ground, cut since last report. We have set the stopes in the 50 metre level on tribute. We have nine tribute pitches working, at prices varying from 120 francs per ton of ore, 50 per cent. There is no change in the ground of level west from the railway level.—La Grange: The shaftmen at Noky's shaft have nearly completed the fork in the bottom of the 20 metre level; we hope soon to commence the sinking of the shaft. The 20 metre level north is in a large lode, 16 ft. wide, ore throughout. The rise in the back of the same level south is unproductive. The adit north looks kindly, and produces stones of ore occasionally. The two stopes in the back of the 20, and the two in the back of the adit, yield well. The adit cross-cut west, at La Rancoule, is in speedy ground, and we are driving at the rate of 15 metres per month at this time. The level south of the cross-cut, on No. 1 lode, is unproductive.—Roser: We have four pairs of men taking the wood out of the old levels.—Roure: The 80, north of Richards's shaft, yields saving work of low quality. The same level south, on the eastern part of the lode, yields stones of ore. The 50 south, on the main part of the lode, has met with quartz, containing ore, and letting out much water. The lode in the 60 south is more kindly than for the last month, yielding stones of ore. The 60, north and south of Saneauville's cross-cut, yields ½ ton of ore per fathom each. The 40 metre level, south of Agnes's shaft, yields ½ ton of ore per fathom. The 20 metre level, south of same shaft, looks well, yielding 1½ ton of ore per fathom. The adit south yields a little saving work. The stollen, south of James's shaft, is in a kindly lode, composed of barytes, quartz, muddle, and stones of ore. Virginia's shaft, sinking from surface, is in hard basalt, and very spare. Our stopes in this mine, which are 18 in number, yield tolerably well on the whole. The tribute pitches, on the whole, are not quite so good as for the previous months. We are glad to say that we have a very favourable change in the weather, having had during the last few days good showers of rain, which have given us a nice stream of water, but the past month has been drier than ever we have seen it here before; we hope now, however, the worst is past. Our samplings will show a diminution on that account. Our samplings are 190 tons.

PORTUNA.—T. Michell, P. Curtis, Aug. 29: Canada Inco.—West of Taylor's Engine-shaft: The 100, east of Adit shaft, continues hard and poor. The lode in the 100, west of Clavel's sump-winze, is 3 ft. wide, consisting of soft granite, quartz, and lead ore, worth for the latter 1 ton per fm. In the 90, west of Zamora's winze, the lode is small, and the ground hard for driving. The lode in the 80, west of Santana's winze, is showing spots of ore, but not enough to value. The 70, west of Guillermo's winze, is opening out a splendid piece of ground, worth 4 tons of lead ore per fm. The lode in the 55, west of Salvador's winze, is still very small and poor.—East of Taylor's Engine-shaft: In the 55, east of Lazara's winze, there is a little ore, but not to value. In the 45, east of Jose's winze, the lode is worth ½ ton per fm. The lode in the 30, east of Dominguez's winze, is worth 2 tons per fm.—Shafts and Winzes: In Judd's shaft, sinking below the 55, the main part of the lode is still to the north, worth ½ ton per fm. The lode in Canada's winze, below the 45, is very small, and the ground hard. In Gonzalez's winze, below the 30, the lode is large and open, consisting of granite, quartz, and lead; worth for the latter 1 ton per fm. The lode in Garcia's winze, below the 20, is worth 1½ ton per fm. In Pascual's winze, below the 45, the lode is worth 1 ton per fm.—Los Salidos Mine: In the 75, east of Gregoria's winze, the lode is worth 2½ tons per fm., composed of gossan, quartz, and lead. The lode in the 55, east of Dominguez's winze, is very compact, composed chiefly of quartz and lead, worth for the latter 1

BRITISH MINES.

stapes in back of the 10, on No. 5, and No. 6 lode, by east and west of flat-roof shaft, by ten men, at 42s. per fm. To drive by two men the 60 west of shaft, on No. 4 lode, by 25s. per fm.; lode fully 6 feet wide, yielding good average stuff. Treaster's Shaft: The 50 to drive west of shaft, on the course of No. 4 lode, by four men, at 80s. per fm.; the lode at this point is 8 feet wide, producing good work. Two stapes in back of the 40, on No. 4 lode, by five men in each stope west, at 15s. per fm. Two stapes in back of the 30, on No. 2 and No. 4 lodes, by ten men, at 21s. per fm. To drive the 30 west, by two men, on No. 4 lode, at 75s. per fm.; the lode in this end is 8 feet wide, run-

NORTH POOL.—*Ms. S. Phillips, J. Pope, Sept. 6:* Robert's engine-shaft has been sunk 15 fms. 3 ft. from the base, which is about 18 fms. from the surface, through highly mineralised strata of siltan and clay-slate, of most changeable kind and colour, demonstrating to a speculative degree the presence of mineral in the lodes at a shallow depth. The lode alluded to in our last week's report has been sunk into some 8 ft., and the last 2 ft. have yielded considerable quantities of green and black oxide of copper, in most

generous matrix, and with such general appearances as will support us in believing that it is the channel of a great deposit of copper in this entirely new lode of the property, more certainly because the shaft is and has been perfectly dry from water, and being so shallow, no backs of mineral existing to cause or support percolation of mineral oxides, consequently it must have arisen from mineral *in situ* beneath during wet winters, and probably before any mines were worked in its proximity. The adit cross-cut to Hilaria is within speaking distance of being holed. The pit and timbermen are cutting ground for beams and clearing the site for the shaft for pitwork. The timbermen are engaged about surface erections and balance beam stand and box pit.

NORTH SHEPHERDS.—H. Bennett, Sept. 10: Decimus engine-shaft is sunk and cut down, timbered and secured, 17 fms. below surface. The shaftmen are still engaged cutting down the shaft, and will shortly complete it to the bottom of the adit. The rain here for the last two weeks has fallen heavily, and in consequence of so much wet the masons have made but slow progress in building the engine-house.

NORTH WREY.—T. Kemp, Sept. 10: We have had a great deal of rain here during the last week or two, consequently we have a good supply of water for the wheel, and I am pleased to say we are making good progress in driving the mine.

OKEL TOR.—W. B. Collier, Sept. 9: The lode in the 80 is increasing in size in the end; it is now 3 ft. wide, of capel, peach, and mudiic, with a little water coming away from the lode. In the winze sinking under the 80 the lode is yielding 4 tons of ore to the fathom; the water is easy in the winze for sinking. The men are driving by the side of the lode in the 65 and 50 ends. In the eastern pitch, at the back of the 65, the lode will yield from 4 to 5 tons of ore to the fathom. The eastern pitch, at the back of the 50, will yield 5 tons of ore to the fathom. At the middle pitch, in back of the 50, the lode is increasing in size in the back, and yielding 4 tons of ore to the fathom. The western pitch, the lode in which is large, but not so good as it has been, looks very promising again for an improvement. In the drive on the south side of the lode, at the 65, the ground continues as last reported; the distance driven is 7 fathoms to the 10 fathoms stage.

OLD WHEAL NEPTUNE.—E. Harvey, Sept. 9: The engine-shaft is sunk 46 fms. below the deep adit level, the lode is from 3 to 4 feet wide, of a most splendid appearance, producing some very rich grey and black copper ore, a specimen of which we forwarded to your address at the office; it is one of the best specimens of grey I ever saw, and I believe there are very large deposits of the same kind of ore immediately adjoining, and in many other places throughout the mine; all that is necessary is to clear the levels and shafts, in order to set tribute pitches, when I am confident we should very shortly raise excellent quantities of ore to meet the current cost, and quickly arrive at a dividend state. In boundary shaft the men are making good progress in clearing and securing, and will shortly commence clearing the 24 fm. level east, towards Polkinghorn's shaft, which, when cleared, will thoroughly ventilate the eastern part of the mine, and enable us to make greater progress in reaching the 40 fm. level, or bottom of Polkinghorn's shaft, where we have been informed, from good authority, that there is a good lode of ore standing. We are pushing on the driving of the cross-cut from Stevens's towards Manby's lode with the utmost vigour, and expect to intersect the lode in about six weeks, and judging from the appearance of the lode gone down in the bottom of the adit, and the highly mineralized ground in the cross-cut, we may reasonably expect to intersect the lode under favourable circumstances. We have cleared and well secured with timber Giddy's shaft 6 fms. below the surface; under this it requires no timber; we have also fixed 55 fms. of ladder-rod, and can now reach the 40 fm. level, below the adit. In the 20 fm. level we can see some good ore ground, which will be set at a moderate tribute. We have built a new horse-whim at this shaft, and shall get it at work by the end of this week, and shall see the bottom level at the earliest moment. This is a very important point to be arrived at, as there are large quantities of ore in the 60 fm. level west, which we expect to see in about six or eight weeks from this time. The prospects in this part of the mine are very encouraging. The tribute pitches are looking very well to the depth that we are working at. The different points throughout the mine never looked so promising as at the present time, and I am sanguine we have a splendid property when further laid open. I would recommend that a steam drawing-machine be at once erected; it would not only be a great saving in horse labour, but greatly facilitate the clearing of the mine, which is of the utmost importance, both in time and money.

PANT-Y-PYDEW.—R. Nankivell, Sept. 10: There has not been anything done in the bottom of Kendrick's engine-shaft during this week, neither in the 80 fm. level end or stump. We had a breakage on Sunday last; one of the cog-wheels and exhausting pipe of the engine broke. The water rose very rapidly in consequence of the heavy floods within the last few days. We set the engine to work again last night; it drained dry during the night. The water is now to the back of the 80. I hope in course of a day or two the men will be working in the bottom of the shaft again.

FAR CONSOLS.—F. Puckey, T. Rich, J. Hoeking, Sept. 7: We have no improvement to notice in any part of the mine since our last report. The ends in the different lodes are producing work of a low quality for tin and copper. We are continuing a strong force on tutwork, and have at the present time seven cross-cuts driving in different parts of the mine to prove the lodes at a greater depth, which are progressing favourably, and should they again prove productive, our returns will increase, particularly in copper.

FENDEK CONSOLS.—J. Warren, Sept. 5: The lode in the 118 south has improved, now worth 121 per fm. In other parts of the mine there is no material change.

FENHALLS.—R. Pryor, W. Higgins, Sept. 5: The ground in the engine-shaft, sinking below the 40, is favourable. In the winze sinking below this level the lode is worth 111 per fathom. The ground in the 40 cross-cut, south of this shaft, has become a little harder.—Flat-rod shaft: The lode in the 20, west of cross-cut, is worth 101 per fm.; and in the rise in the back of this level, 81 per fm. The lode in this level, east of cross-cut, is at this time disordered by a slide, and now worth 61 per fm. The lode in the slope below the 10 is not so good as when last reported on, being disordered by a gossan, now worth 61 per fm. The ground in the 30 and 40 fm. level cross-cut, north of this shaft, continues to be good, but we have not as yet hit the lode neither. We are getting well on with the building of the burning-house, and laying out of the floors. Our engine and rods continue to work well.

FENTRE LYGAN.—F. Evans, Sept. 9: We are making satisfactory progress in sinking the engine-shaft, and trust are long to be able to report the lode coming in the shaft, as it must be very near it now.

POLHIGGY MOOR.—T. Bennett, Sept. 9: The counter lode in the south shaft is not looking so favourable as it was when last reported on; the lode is a little easier for sinking. The north lode in the east shaft is more productive, and at present is about 101 per fm. The engine lode in the west shaft is about 2 ft. wide, and still contains a very favourable character, and much the same quality as it was a fortnight since. The shaft is now 3 fms. below the 10, and ground very easy for sinking. A few days since we set a pitch in this level, at 81, in 11.

PRINCE OF WALES.—W. Gifford, Sept. 8: In the new shaft, on Drake Walls lode, the water is increased since my last report, finding its way down through the old workings on the back of the lode; ground much the same. In the deep adit east, on Good Luck lode, we are driving on side of the lode. No alteration to notice.

PROSPER UNITED.—S. Lean, W. B. Martin, Sept. 10: The ground in Louisa's diagonal shaft, sinking below the 70, is more favourable than when last reported. The lode in the 70 fm. level west is 2 1/2 ft. wide, and will produce 3 tons of ore per fathom. The lode in the 50 fm. level, sinking below the 60, is 2 1/2 ft. wide, and will produce 2 tons of ore per fm. Hill's shaft is sunk to the 70 fm. level; we shall commence to drive west at this point without delay, to get under the tin ground driven through in the 60. The lode in the 60 fm. level, west of Hill's shaft, is still worth 201 per fm. for tin. The lode in the 50 fm. level, west of Hill's shaft, is more settled, and increasing in size, composed principally of spar and prlan. The lode in the 60 fathom level, east of Louisa's shaft, is 2 feet wide, containing occasional stones of copper ore. The lode in the 60, east of Hoeking's engine-shaft, is 4 feet wide, and will yield 1 ton of ore per fm.

REDMOOR.—T. Taylor, Sept. 9: The lode in the 40, east of Johnson's, is about 2 ft. wide, containing large quantity of mudiic, mixed with wolfram, and worth about 61 per fathom for tin. In the 60 west the lode is about 1 ft. wide, worth 51. We have not reached the north part of the lode in the 60 east. No alteration in the tribute pitches since last reported on.

ROAING WATER.—Captain Thomas, Sept. 8: The 3 fathoms extent in the new shaft, on Grady's lode, was completed last Saturday. I have re-set to the same pair of men, including putting timber (except dividing and casing) in the shaft, to be carried as before—9 feet long by 6 feet wide, at 81, 101, extend to the 10 fathom level. The shaft is now 5 fathoms 3 feet from surface. The lode in the bottom of the shaft is getting more settled, and promising to be a decided improvement as we get deeper; in fact, there is every prospect of this. The slope in the west of the shaft, on the same lode, is producing ore of rich quality, and the lowest point opened is looking better and stronger, and more settled than seen above. I shall now use every energy to get a small parcel of ore for market.

ROSEWARNE UNITED.—Thomas Richards, Edward Cartlew, Sept. 10: Giesler's engine-shaft, is down 3 fathoms below the 20 fathom level; the ground still continues favourable for sinking. The ground in the 20 fathom level cross-cut, north of the engine-shaft, still continues very favourable for driving. The lode at the 10 fathom level, driving west of engine-shaft, is 2 feet wide, containing stones of black and grey ore. Boundary shaft is sunk down to the 10 fathom level, and we have driven the 10 fm. level 6 ft. east; lode 2 ft. wide, containing flookan, quartz, and stones of copper ore. In the 10 fm. level driving east of No. 2 winze, the lode is worth 51 per fm. for copper ore; ground very easy for driving. The lode in No. 2 winze, below the 10 fm. level, is worth 81 per fm. for copper ore. The slope in the back of the 10 fm. level, west of No. 1 winze, is worth 121 per fm. for copper ore. The slope in the back of the 10 fm. level, east of No. 2 winze, is worth for copper ore 101 per fathom.

ROYALTON.—T. Parkyn, Sept. 10: We have cut into what we call the Piskey lode, which is a dark-grey stone, containing tin throughout, and is very good; it is the same you saw when down last week near the shaft, and where we have cut it now is 6 fathoms east of the shaft, and is equal in value. The tin is all through the stone, and as I have seen it here at different points it would appear that the ancient's lost sight of this very important feature, or they had no stamping power near at hand. As I reported in the prospectus so I find it—that is, the old men had taken away the lode in different places, leaving portions to stand to support the ground above them, and this has been done from 5 to 8 fathoms in depth; but you must remember that the ancient's operations were on the largest lodes of tin, which are generally solid, but have left immense quantity of this Piskey lode, which I can turn to a good account at once when our stamps are set at work; and besides, there is a considerable quantity of the lode open that can be taken away at any moment, which is full of ladders of tin, the same in character as that I have raised, and is now lying at surface in some hundreds of cart loads, which I think is a good sample, raised so shallow. I can assure you it is far better than one might expect.

SILVER VEIN.—E. Burn, Sept. 10: The summons are engaged fixing the pitwork in the 40, and will have it completed by the end of this week, when we shall resume sinking the engine-shaft with all possible dispatch. In the 40 west we have intersected No. 1 east and west lode; we have cut into it about 2 1/2 ft.; no north west yet. It is composed of quartz, principally yielding good stones of bluish, with spots of yellow copper ore—a very promising lode indeed. I hope to be able to report more fully on this lode next week. Our progress in this end is slow, the ground being stiff, and the lode letting out a deal of water. In the 40 south the lode is 18 in. wide, at present producing spots of ore. In the 30 north the lode is worth 81 per fm. for the part carried—2 1/2 ft. wide. From the appearance of the end-to-day I expect a further improvement. The tribute pitches in this level are looking satisfactory, and the men are getting wages in their respective tributes. The 20 north is without alteration since last week. The slope in this level is worth about 61 per fathom. The new whim-shaft is down 104 fms.; set again to-day at 51 per fm. of the month. The reason I did not set a lower level is because I am expecting the ground to improve as we get near the lode. With the improvement in the 40, and the general appearances of the principal points we have in operation, I consider the mine to be looking more cheering than it has ever been. I have made arrangements for water-wheel and crusher, and the work for the same will be got on with as fast as possible.

SOITRIDGE CONSOLS.—R. Jackson, Sept. 10: In the 50, west of ventilating shaft, the lode is 4 ft. wide, composed of spar, mudiic, prlan, and good stones of ore occasionally. In the 50, west of Mayne's cross-cut, on No. 3 south lode, the lode is small and unproductive. In the 50, west of the 40, west of John's cross-cut, on No. 2 south lode, the lode is 1 ft. wide, composed of spar, goann, mudiic, and spots of ore. We have commenced to drive Dan's cross-cut north, in the 62, to intersect No. 1 tin lode; the ground is favourable for driving. In Stanton's cross-cut north, in the 50, east of the eastern shaft, the ground continues easy for progress. In the 50, east of Stanton's

cross-cut, on No. 1 tin lode, the lode is 3 ft. wide, yielding good saving work for tin. In the 50, west of Stanton's cross-cut, on No. 1 tin lode, the lode is 2 1/2 ft. wide, yielding good stones of tin. There is no change to notice in any other part of the mine.

SOUTH DOLCOATH AND CARNARTHEN CONSOLS.—Wm. Roberts, Sept. 8: Tutwork Setting: The 70 fm. level cross-cut to drive north, by six men, at 31. 10s. per fathom. A plot to cut at the 36, and one at the 24; the former by four men, at 61., and the latter by four men, at 41. 10s. per solid fathom. The 24 to drive east of the flat-rod shaft, by four men, at 51. 10s. per fathom; in this end the lode is 2 ft. wide, producing 1 1/2 tons of ore per fathom. In the same level, west of shaft, the lode is 1 ft. wide, producing good stones of ore, tribute ground, but the last two ends cannot be driven until the men have finished cutting flat at the 24. The 12 to drive east, by two men, at 71. per fathom; here the lode is 1 1/2 ft. wide, having a promising appearance.

SOUTH RULER.—J. Hoeking, Sept. 3: At Hodge's shaft, sinking below the 50, the lode is 10 inches wide, composed of quartz and copper. In the 50, driving west of Hodge's shaft, the lode is 8 in. wide, composed of quartz and chlorite, with a little copper. The 50 cross-cut, driving north of engine lode, west of Hodge's shaft, continues hard, and the cross-course small. In the winze sinking in bottom of the 40, west of Hodge's, the lode is 8 in. wide, composed chiefly of chlorite, with a little copper. In the 40, driving west of Hodge's shaft, the lode is 8 in. wide, producing stones of copper ore. In the winze sinking in bottom of the 24, west of Hodge's, the lode is 1 ft. wide, composed of quartz, with a little copper. In the 24, driving west of Hodge's shaft, the country towards the north is not so hard, and presents indications of removing altogether that flinty granitic rock, bearing now so hard and having such an unfavourable effect on the lode. The lode is now 8 in. wide, composed of chlorite, quartz, and copper, of the latter not sufficient to value.

SOUTH CARADON WHEAL HOOPER.—W. C. Cook, Sept. 5: The ground in the 90 fm. level cross-cut north continues very hard, consequently our progress is slow.

SOUTH GRENVILLE.—E. Chagwin, Sept. 10: In the flat-rod shaft, sinking below the 124, the lode is 2 1/2 ft. wide, producing 1 ton of copper ore, worth about 41 per fm. In the 124, driving west of flat-rod shaft, the lode is 2 1/2 ft. wide, producing 1 ton of copper ore, worth about 71 per fm. In the 124, driving east of flat-rod shaft, the lode is 2 ft. wide, producing good stones of copper ore. In the 105, driving east of flat-rod shaft, the lode is 3 ft. wide, producing 2 tons of copper ore, worth about 121 per fm. In the 105, driving west of flat-rod shaft, the lode is 2 1/2 ft. wide, producing 1 1/2 tons of copper ore, worth about 21 per fm. Our tribute pitches are without change to notice.

SOUTH DARREN.—J. Boudry, Sept. 8: We have not taken down any lode in the 60 east since my last report, therefore I cannot report any change. The slope in back of the 50 east being poor, I have placed the men to stop the back of the 30 west, east of the 50, driving west of the 30, east of the 50, to stop the back of the 30 west, east of the 50, since last reported. The slope in back of the 30 west has rather improved during the past week. The lode in the 20 west is all the width of the end, containing a dark clay-slate, with strong spots of lead and copper ore; the appearance of the end at present strongly indicates an improvement soon. No change in any other part of the mine to notice. The machinery is in good repair, and working well, and the water at this time is 6 in. below the back of the 70. Our forking has been impeded of late, in consequence of the heavy falls of rain.

SOUTH GORLAND.—Wm. Rutter, Sept. 8: The main lode in the rise against the western shaft is of a very congenial character for the production of more copper ore than it now contains, and an improvement is looked forward to with much interest. No material alteration has taken place at either of the other contracts since last week.

SOUTH WHEAL GRENVILLE.—G. R. Odgers, W. Bennett, Sept. 5: There is no change since my last report. We are waiting the reply to our request for the use of the shaft, hence we have no alteration.

ST. DAY UNITED.—E. Ralph, J. Cook, C. Oates, Sept. 5: At Ople's shaft, sinking below the 174, the lode is 5 ft. wide, and worth 401 per fm. At Billing's shaft, sinking below the 174, the lode is 6 ft. wide, and worth 451 per fm. In the 174 fm. level, east of Ople's, the lode is split into two parts: the south part is producing a little tin, and the north part not taken down. In the 174 fm. level, west of Billing's, the lode is 4 ft. wide, and worth 161 per fm. The slope (three in number) in the back of this level are looking well. In the 164 fm. level, east of Ople's, the lode is large, producing saving work for tin. In the 164 fm. level, west of Billing's, the lode is 4 ft. wide, and looking very promising, worth 151 per fm. All other parts are just the same as for some time past.

ST. IVES WHEAL ALLEN.—J. Nancarrow, J. Bryant, Sept. 10: In the 10 west we are getting near the old level, and expect to hole in a day or two. We intend setting the 20 to drive west on the Standard to-day. The 20 east, on the Standard, looks rather better, is worth 31 per fathom. The new winze below this level has improved; it is now 21 ft. wide, worth 71 per fm. The 20 west is coming to the surface, and continues to be worth 51 per fathom. The lode in the 13, east of Charles Frederick's shaft, is small, and yields but little tin. The slope below is worth 61 per fm. Richard's shaft is rather spare for sinking; lode 4 feet wide, low-priced tinstuff.

ST. JUST CONSOLS.—J. Cartlew, Wm. Williams, Sept. 9: The mine is looking well. We have the Guide shaft sinking with nine men, and the lode continues large; we carry only one part of the same in the shaft at present. The deep adit level is still being driven with all speed towards the Guide shaft, and hope by end of next month to communicate to the shaft, we shall then be able to break much more tinstuff. The lode in Casley's shaft then was suspended sinking in consequence of the water being so very quick; we were looking well; we were very sorry to stop sinking, as the men were sending up good tinstuff, but we found it utterly impossible to keep the water by manual labour. Now we are preparing a water-wheel to draw the water from this part, and can also be made available to assist in any other part of the mine if wanted. We hope to get this wheel to work in three weeks time. We are also driving a shallow adit level to the east by one man and a boy, and they are daily breaking good stones of tin. On the whole, the mine throughout is looking better.

ST. JUST UNITED.—Capt. Cartlew, Sept. 10: I have nothing new this week to report. Saturday last was our pay and settling-day. Everything went off well. We set our 20 to drive west to 72 fms., and the 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a kindly lode, composed of goann, with good stones of copper ore. The 50 west is coming to the surface, making 30 ft. breaking tin. We are extending five levels in tin ground; the lode is looking better than we expected. In sinking the Red Dipper shaft we have a good tin lode; we have promised the men a bonus of 61 if they sink 5 fathoms by the next settling-day. The mines throughout are looking first-rate. The engineers are engaged putting in the new engine. The two bobs are in the house, and the cylinder will be in this week. We shall begin this week to lay a tramroad in the 40, west from the engine-shaft, so that by the time the winze is ready to work we may be prepared to explore on the copper lode.

TOLCARNE.—Sept. 10: Field's Lode: The 50 east is a

but we think it of great importance to call the attention of our readers to the few remarks made by the directors of the Connors Mines on the subject of their application of a boring-machine. It will be seen that Mr. George Low, of Newark-upon-Trent, has engaged to furnish these mines with a machine capable of boring 1 fathom "forward" per day, and has thus far been sufficiently successful with his apparatus to venture on a contract under heavy penalties. From the sound judgment and energy herein displayed by the directors they decidedly deserve much praise, not only from their shareholders, but from all interested in mining. The advantages of the application of mechanical power to driving levels and sinking shafts are immense in point of saving of time, and cannot fail to be as profitable, in the end, to the working miners as to the mineowners. We fell inadvertently into error last week, when we stated that the total profits divided by the late Wicklow Copper Mining Company amounted to 135,570l. This amount referred only to a particular period, the actual total having been no less a sum than 228,000l., after making most liberal allowances for depreciation of the valuable machinery on the mines. We may also call attention to the great increase in this mine in low-priced copper ores since the managers bestowed more care upon the production of it. It deserves particular notice that the directors of so successful a mining company made no charge for their valuable services for the last three half-years, and left it to the decision of the shareholders whether the trifling balance (of the old amount) of 250l. should be awarded to them or not, which, of course, was most cheerfully done.

The Connors Mining Company, in their half-yearly report, refer to matters of some general interest, and of which we should like to hear more: "The chemical experiments on the poorer copper ores, as indicated in our last report, have since been presented with great care by Mr. Maynard. In the course of his operations he has arrived at results that give us every reason to expect a more economical treatment of the ores, and an increased percentage of copper for shipment. The simplicity and cheapness of the process have induced the directors to discontinue for the present all the other chemical experiments on the ores of the mines. "The works in Shroghmore (north of the old mines) are at present confined to the driving of the deep adit. This has been now extended 130 fathoms, and from the indications presented should soon intersect Brown's lode. The directors, deeming it most important that this great work should be pushed on with the utmost vigour, have concluded a contract with Mr. George Low, mechanical engineer, Newark-upon-Trent, for a boring-machine, with all the necessary apparatus for working it, by which a fathom forward per day can be excavated. This they have had proof from the practical trials already made at the mine by one of Mr. Low's machines. It is bound under heavy penalties to have it in full work by a given time, and they trust at the next half-yearly meeting to be able to report considerable progress from its operations."

The Bellabio Lead Mines, which are situated a few miles from Lecco, in Northern Italy, are about to be worked by an English joint-stock company, with limited liability. The property has been carefully inspected by Mr. Geo. Darlington, who, in an elaborate report, which will be found in another column, states the levels already driven lie probably 2500 ft. above the lake. The ore deposit is a bed of limestone, in which veins, strings, lumps, and detached masses of excellent galena, are found; and it may be termed, instead of a bed of ore, a bed of plumbiferous limestone, but one in which the lead ore exists in a massive and not a disseminated condition. Mr. Darlington estimates the average yield of ore will be about 18 cwt. per ton of vein stuff; and that, allowing for all dead charges, and calculating upon a return of 250 tons per month, a net profit of 16l. 10s. per ton will be realised, which will pay 35 per cent. upon a capital of 50,000l. He proposes that the whole bed should be removed by a system analogous to the long-wall system of coal working. The detailed prospectus will, we understand, be issued shortly.

The Zollern Colliery Company of Dortmund, Westphalia, has issued its prospectus, which will be found in another column of this day's Journal, for the issue of 75,000l. worth of preference shares, of 15l. each. The holders of these shares are to be entitled to 10 per cent. per annum dividend out of profits before any distribution is made among the original shareholders, and 5 per cent. interest upon the calls paid is guaranteed to them until the colliery is in full working order. As the shares will be issued at 85 per cent., the preference dividend will really exceed 11 per cent. per annum. The whole of the necessary buildings and machinery (with the exception of one additional powerful pumping-engine, requisite through water having been met with, which was not anticipated) have been erected, and are in good working order, and the property is within easy reach of the Rhine, and of good shipping ports on the German Ocean. It is estimated that with an average production of 1000 tons per day (a quantity which could readily be obtained, considering that there are the whole of the valuable seams beneath upwards of 3000 English acres of surface) an annual dividend of 10 per cent. would be realised both on the preference and on the original capital. The cost of production does not exceed 3s. per ton, which estimating the selling price at 6s.—the lowest price that has ever been quoted in Westphalia—there would remain a profit of 100l. per day. The coal being well adapted both for coking and for general purposes, would at all times secure a ready market. The property has been carefully inspected by two of the local Government mining officials, and by Mr. W. T. Mulvany, an English mining engineer, who is also the owner of collieries in the district, which are yielding good returns.

Reliable information has been received in London that the concession which was promised for the establishment of an English and Russian Bank has, on the 3d inst., received the final confirmation and signature of His Imperial Majesty the Emperor of Russia. The concession gives the Bank referred to the privilege to carry on banking business (with such branches as the court of directors may at any time consider advisable), in any part of the Russian empire, for an unlimited period. The name of "The English and Russian Bank," under which a considerable amount of the capital (2,500,000l.) has already been subscribed; and with which the eminent banking firm of Messrs. Roberts, Lubbock, and Co., and Messrs. Ricardo, stockbrokers, are connected, will probably be changed on the publication of the names of the directors, in consequence of other parties having registered the title of English and Russian Bank before the concessionaires were in a position to secure themselves against such an infringement.

At Redruth Ticketing, on Thursday, 2177 tons of ore were sold, realising 10,444l. 17s. 6d. The particulars of the sale were:—Average standard, 115l. 8s.; average produce, 6l.; average price per ton, 4l. 16s.; quantity of fine copper, 142 tons 8 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Net copper.
Aug. 13.....	2885	118 11 0	6 1/2	4s 8 0	478 9 0
" 20.....	5173	124 8 0	6 1/2	4s 8 0	726 0 0
" 27.....	2872	118 7 0	6 1/2	5 0 0	76 11 0
Sept. 3.....	2177	115 14 0	6 1/2	5 4 0	75 12 0
" 10.....	2177	118 8 0	6 1/2	4 16 0	73 6 0

Compared with last week's sale, the decline has been in the standard 1l. 10s., and in the price per ton of ore about 2s. Compared with the corresponding sale of last month, the decline has been in the standard 5l., and in the price per ton of ore about 6s.

At the Swansea Ticketing, on Tuesday, 1806 tons of copper ore were sold, realising 19,416l. 6s. 6d. The particulars of the sale were:—Average standard, 97l. 9s. 6d.; average produce, 13 5-16; average price per ton, 10l. 15s.; quantity of fine copper, 240 tons 8 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Net copper.
Aug. 11.....	2075	101 13 6	13 11-16	11 10 0	85 12 0
" 18.....	1394	100 18 0	13 1/2	11 10 0	84 8 0
Sept. 5.....	1806	97 9 6	13 5-16	10 15 0	80 15 0

Compared with the last sale, the decline has been in the standard 3l. 10s., and in the price per ton of ore about 9s. 6d. Compared with the corresponding sale of last month, the decline has been in the standard 4l. 15s., and in the price per ton of ore about 12s. 6d. Of the 1806 tons sold on Tuesday, 808 tons were British ores, which gave an average produce of 10l., and sold at an average standard of 101l. 7s. = 7l. 19s. 6d. per ton of ore; the remaining 998 tons were foreign ores, which gave an average produce of 16, and sold at an average standard of 95l. 9s. = 13l. 0s. 6d. per ton of ore. On Sept. 22 there will be offered for sale 2421 tons, from Cobre, Berehaven, Knockmahon, Kanmantoo, Connors, Victoria, and Cape Copper Company's Mines.

At the West Caradon Mine meeting, on Wednesday (Mr. Hallett in the chair), the accounts showed assets over liabilities of 2520l. 11s. 3d. Details will be found in another column.

At the Wheal Mary Ann meeting, on Tuesday, the accounts for three months ending June showed a credit balance of 1207l. 8s. The loss on the quarter's working was 429l. 12s. 1d. The captains' report is among the Mining Intelligence.

At Grambler and St. Aubyn Mine meeting, on Tuesday, the accounts for the four months ending July showed a debit balance of 514l. A call of 1l. per share was made. Thanks were voted to the Duke of Buckingham and Mr. Trevelyan for remitting the dues during pleasure. Capt. John Mitchell reported that they were getting on very well with their surface work, the engine and pitwork are in good condition, and working well.

At New Rosewarne meeting, on Sept. 4, the accounts, including the costs for June, showed a debit balance of 900l. 0s. 5d. A call of 1l. per share was made. It was resolved that a report be sent to the Mining Journal upon the third Friday in each month. The report stated that in looking at the ore ground standing in the bottom of the 56 ft. level, both east and west of Rickford's shaft, which is about 40 fms. in

length, and seeing the improvement that has taken place in the appearance of the lode below this level, the agents were of opinion that the next level would lay open a first-rate piece of tribute ground. The report concluded by stating that it should be borne in mind that during the whole time the present company had been working they had had to contend with heavy and extra expenses.

At the Treloy Consols Mine meeting, on Sept. 2, the accounts showed a debit balance of 61l. 14s. 5d. The agents' report stated there were 90 men employed underground, and the number would be monthly increased in laying open and taking away profitable ground.

At the St. Aubyn and Grylls Mine meeting, on Aug. 31, the profit and loss account during the twelve months, ending June 30, showed a debit balance of 253l. 2s. 8d. The agents' report stated that the deep adit, 40 fms. from surface, would soon be under the improvements, from which time he was happy to say that they could not only pay the current cost, but could see their way clear to a profit; and as for some years the greatest part of their tin had been raised from above the deep adit level, they were safe in calculating on having a profitable mine for years to come, provided they confined their operations to that depth. There had been raised more tin from the adit level in the last fortnight than throughout the previous twelve months.

At Condurrow Mine meeting, on Sept. 2, the accounts for the three months, ending with the costs for May, showed a loss of 2473l. 2s. 8d. The debit balance was 3575l. 0s. 3d. The report of the agent stated that there were from 40,000 to 50,000 tons of tinstuff in reserve, and ready to be taken away when required—this has been opened within the last two years. The stamping-floors are crowded with tinstuff, computed to contain, together with the accumulation at the stamps, about 75 tons of black tin.

At Rosewall Hill and Ransom United Mines (committee) meeting, on Aug. 31, the managing agent informed them that the progress anticipated in opening some of the ore ground between the 80 and 90 ft. levels of the Ransom engine-shaft, had not been made, in consequence of a deficiency of air and hard ground, which, combined with the falling off in the prospects in the vicinity of the engine-shaft, have lessened the immediate returns of tin, and recommended that the next account be held in December instead of September, as was intended, by which time it was considered the mine would be in a better position. The committee thought it most advisable, under the circumstances, to act upon such recommendation, and postponed the holding of the account accordingly.

At Pedn-ar-drea United Mines general meeting, on Tuesday (Mr. Herbert Lewis in the chair), the accounts for the three months ending June showed a balance of assets over liabilities of 4l. 10s. 7d. The agents' report was very encouraging. The black tin sold for the quarter amounted to 4355l. 4s. 2d.; copper ore, 1091l. 10s. 7d.; arsenic, 45l. The costs for the three months ending June was 4679l. 12s. 4d. After the general, a special meeting was held, when the resolutions previously passed to separate Wheal Spannon were unanimously confirmed. The mine was divided into 6000 shares, and a 2s. call made per share. Capt. W. Treag, T. Delbridge, and J. Thomas thus conclude an elaborate report—"We have often expressed a favourable opinion of these mines, and all the changes noticed we deem to be strengthened that opinion; for, notwithstanding occasional disappointment, and falling off in value from the richest bunches at certain points, we have found that each level as we have gone down into the granite has increased in general productiveness, and we have every reason to expect the next level to be still more productive than either of the others."

At Great Brigant Mine meeting, on Thursday (Mr. J. E. Mathew in the chair), the accounts showed a debit balance of 2935l. 15s. 8d. A call of 10s. per share was made. The report stated that two important points were expected to come off within two months—cutting the lode in the 72, and the cross in the deep adit, to intersect Saturday lode, which in Wheal Rose was exceedingly rich, and only 70 fathoms from Brigant boundary.

At the Great North Downs meeting, on Thursday (Mr. J. E. Mathew in the chair), the accounts showed a debit balance of 2488l. 12s. 8d. A call of 10s. per share was made. The report from the agent was considered highly satisfactory.

At the Chiverton Mine meeting, on Thursday, the accounts for four months to the end of July showed a credit balance of 3361l. 13s. 6d. The agent's report and the details of the meeting will appear in next week's Journal.

At Caradon Consols meeting, yesterday (Mr. J. A. Buckland in the chair), the accounts showed a debit balance of 62l. 3s. 10d. A call of 12s. 6d. per share was made, and the committee re-elected.

At Great Wheal Vor United Mines meeting, to be held on Wednesday, the accounts to be presented show—Black tin sold May, 1864, 6s. 3d.; June, 2280l. 2s. 6d.; July, 2025l. 14s. 3d.; old iron sold, 19l. 5s. 9d.; old whelm sold, 6l. 10s.; one year's rent of Trevelyan to Midsummer, 1863, 15l.; cash balance, 2l. 0s. 2d. = 6287l. 15s. 11d. Mine cost, April, May, and June, 3125l. 18s. 6d.; merchants' bills, 1171l. 7s. 6d.; dues, 335l. 5s. 11d.; sundry payments, including London expenses, 240l. 5s. 11d.; leaving credit balance (profit), 1415l. 6s. 1d. The cash account shows—Cash at the bankers, 1044l. 19s. 10d.; bills receivable, 2021l. 10s. 9d.; petty cash, 6l. 10s. 3d. = 3063l. 10s. The ground sunk and driven during the three months ending June was 54 fms. 4 ft. 1 in.

The Railway Carriage Company (Oldbury) have declared an interim dividend at the rate of 10 per cent. per annum, for the half-year ending June 30.

Captain W. O. Young and Captain George Denny, H.E.I.C.S. (of the General Shipowners' Society), have joined the board of Martin's Patent Anchor Company; and Mr. Francis Campin, C.E., has been appointed consulting engineer to the company, under whose superintendence the works are to be constructed.

NEWCASTLE, SEPT. 10.—The market this week has been more active, Tiniferous and West Chiverton shares being in good request. Local shares are remarkably quiet, and prices are nominal. Tyne heads shares present no change of any importance. At Nether Heath the mine is looking better than for some time past. Harwood is looking much as usual, but the December and January *furor* has abated; the cutting of the east and west cross vein is expected in a short time, when shares may take a turn. Samples have been sent out for sale of 10 tons of ore.—EDWARD BREWIS.

LEEDS, SEPT. 10.—In mining shares a quiet tone has prevailed during the week, and but little business has been done. There is no material alteration in prices.—JOHN GLEDHILL AND CO.

COAL MARKET.—On Monday, the fresh arrivals only amounted to 38 ships; the quantity for sale, consequently, was trifling. House coal met with a brisk enquiry, and upon second class an advance of 3d. per ton was realised. Hartley's and manufacturers' firm, at fully previous quotations. Best coal, 17s. 3d. to 18s.; seconds, 15s. 6d. to 16s. 9d.; Hartley's, 15s. to 16s.; manufacturers', 13s. to 15s. per ton.—On Wednesday, there were 40 arrivals. The demand for house coal was brisk, at a further improvement of from 3d. to 6d. per ton. Hartley's were scarce, and advanced 6d. per ton; manufacturers' steady.—On Friday, the large arrival of 100 ships produced a very active business. First class house coal obtained last day's prices; second and third class advanced 3d. per ton; Hartley's and manufacturers' quiet, at late quotations. Hetton Wallsend, 18s. 6d.; South Hetton Wallsend, 18s. 6d.; Lambton Wallsend, 18s.; Tees Wallsend, 17s. 9d.; Russell's Hetton Wallsend, 17s. 3d.; Eden Main, 16s. 9d.; Gosforth Wallsend, 16s. 6d.; Hetton Lyon's Wallsend, 16s. 6d.; Wharfedale Wallsend, 16s. 6d.; Lambert's West Hartley, 16s. 6d.; Tanfield Moor, 13s.; Bate's Tanfield, 13s.; 6 cargoes unsold; 90 ships at sea.

BRISTOL COAL TRADE.—During August only 295 tons of coal were exported from Bristol overseas, against 766 tons in July, showing a decrease of 471 tons in the shipments. The exports in August were as follows:—Demerara, 190 tons; St. John's, Newfoundland, 105 tons; total, 295 tons, compared with the corresponding month last year, when the exports amounted to 916 tons; the above returns also show a decrease of 621 tons. The total exports for this year up to the present time are 5291 tons, as against 8589 tons during the corresponding period in 1862.

MINING IN SPAIN.—The following are particulars of mineral produce imported into the United Kingdom from Spain during the two years ended Dec. 31:—

	1860.	1861.	Increase.	Decrease.
Copper ore	£42,304	£71,125	£28,821	—
Lead	374,497	370,630	—	£3,867
Manganese ore	44,059	43,817	—	242
Or, unenumerated	178,163	4,417	—	173,751
Pyrites of iron	—	114,103	114,103	—
Quicksilver	271,209	156,347	—	114,862
Decrease in 1861	—	—	185,947l.	—

THE TIN STANDARD.—We have not received our usual official report as to the further reduction in the Tin Standard, but we believe we are correct in stating that the fall is on refined 2s., and common 1s., making the standard to the mine as follows:—refined, 108s. 12d.; common, 106s. 10d. With reference to our quotation last week relative to the tin trade, as it was formerly carried on by the three old established firms, Messrs. Bolitho, Danabas, and Williams, and the competition which at present exists, there being now five additional tin smelters who are active buyers in the Cornish market, we are informed that it is quite a mistake to suppose that prices have been reduced lower than is necessary to meet the requirements of the market. The price of Straits is now about 115l., and the buying standard for Cornish ore, 107, showing a difference of 8 only, or equal to about 6d. per ton. The margin, indeed, between the miner and the smelter is now less than it has been for many years; a few months since it was equal to 13l., but is now reduced to 8l. only. Nor was the standard standard some years since than it is at present; as many as twenty changes in one year having been known. The fact is, the trade can no longer be controlled as formerly, and the tin miner must expect, with free trade, to have to meet the Dutch and other markets, with their fluctuations.—WEST BRITON.

MINE ACCIDENTS.—At Wheal Grambler, on Saturday, John Bray was killed by falling from the 48 ft. level, whilst engaged about timberwork.—At North Rosewarne, on Sept. 7, James Sims was killed by being blown over a slope under the 94 ft. level, and falling to the 105. His arm was seriously injured, and his bowels were knocked out. He died in two hours after the accident.

BLACK TIN.—Sold on the 27th and 28th August.

Mines.	Tons s. q. lbs.	Price per ton.	Amount.	Purchasers.
Far Consols	37 9 1 23	65 5 0	2557 9 6	—
West Fowey Cons.	24 4 2 23	68 10 0	2345 2 6	—
ditto	2 3 1 2	57 0 0	123 16 6	—

Sold on the 1st September.

West Beam	3 16 3 25	70 0 0	269 8 1	Harvey & Co.
-----------	-----------	--------	---------	--------------

Sold on the 3d September.

Prosper Utd.	9 18 0 3	67 10 0	668 6 0	Bolitho & Sons.
ditto	1 14 0 23	48 0 0	82 2 0	ditto

Sold on the 8th September.

East Wh. Lovell.	4 15 0 10	69 10 0	330 8 0	—
ditto	13 3 0	68 5 0	88 10 4	—
Garlands United	7 11 0 19	65 5 0	515 17 3	Biscoe.
ditto	1 12 3 0	49 0 0	80 4 9	ditto

LEAD ORES.				
Mines.	Tons.	Price per ton.	Purchasers.	
Newtownards	25	£12 7 0	Mining Co. of Ireland.	
ditto	25	12 7 0	Sims, Williams, & Co.	

Sold on the 4th September.

Minera Mining Company	110	13 9 0	Sims, Williams, & Co.
ditto	110	13 4 0	Walker, Parker, & Co.
ditto	110	13 4 0	ditto
ditto	100	13 6 0	Sims, Williams, & Co.
ditto	97	13 4 0	Walker, Parker, & Co.
ditto	43 1/2	10 10 0	ditto
ditto	43 1/2	10 10 0	Newtown, Keates, & Co.
ditto	43 1/2	10 10 0	Panther Co.

Wheal Mary Ann	46	25 15 0	Stock & Co.
ditto	20	13 11 6	J. & J. Williams.

Sold on the 8th September.

Foxdale	100	22 10 0	Stock & Co.
Wheal Ludcott and Wrey Consols	50	17 12 6	J. & J. Williams.

SOLD ON THE 10th SEPTEMBER.				
Mines.	Tons.	Price per ton.	Purchasers.	
Maeseyredda	21	13 12 0	A. Eytton.	
Costla Llys	97	14 12 6	Walker, Parker, & Co.	
Deep Level	10	12 18 6	ditto	
Ryfnord Hall	10	12 7 0	Newton, Keates, & Co.	
Rhossamor	100	13 5 0	Walker, Parker, & Co.	
ditto	40	13 5 0	Newton, Keates, & Co.	
Perry's	31	13 8 6	Walker, Parker, & Co.	
Hyra (Swing)	25	13 16 0	A. Eytton.	
Long Blake	15	15 6 0	ditto	
Spindwell	15	12 9 6	Walker, Parker, & Co.	
Kilmorey	12	12 19 6	A. Eytton.	
Pool Park	45	13 13 6	Walker, Parker, & Co.	
ditto	10	12 18 0	Newton, Keates, & Co.	
Dyffryn	36	13 4 0	A. Eytton.	
Dyffrynwm	25	12 17 0	Newton, Keates, & Co.	
Llangrnyg United	58	12 12 6	ditto	
Llanerchyr	15	13 5 0	ditto	
Iale of Man Mining Company	90	14 11 6	J. & J. Williams.	

BLENDE.				
Mines.	Tons.	Price per ton.	Purchasers.	
Minera Mining Company	30	£3 1 6	H. Southern.	
ditto	48	3 14 6	A. Courage.	
ditto	19	2 0	W. Kenrick.	
ditto	17	4 1 0	Vivian & Sons.	

Sampled August 19, and sold at Swansea September 8.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Cobre	108	12 1/2	£10 6 0	Berehaven	83	11 1/2	£8 15 6
ditto	102	13	10 9 0	ditto	124	11 1/2	8 13 0
ditto	82	23 1/2	19 5 0	Yudnamutana	46	30 1/2	24 6 0
ditto	57	23 1/2	18 17 0	ditto	44	32 1/2	25 11 0
ditto	106	12 1/2	10 7 0	ditto	18	33 1/2	26 4 0
ditto	105	12 1/2	10 5 0	Laxey	148	6 1/2	4 9 6
ditto	90	12 1/2	10 7 0	French Slag	97	—	0 19 6
ditto	98	12 1/2	10 6 0	Cape Copper	15	26 1/2	31 0 0
ditto	33	33 1/2	28 16 0	ditto	3	26 1/2	31 0 0
Berehaven	126	9 1/2	8 1 0	Bathurst	6	24 1/2	20 17 0
ditto	76	10	8 2 0	Knockmahon	80	13 1/2	10 14 0
ditto	65	10 1/2	8 3 0	ditto	43	13 1/2	10 13 0</

In Chancery, Lancashire.

SCHIELE'S PATENTS—SCHUNCK v. SCHIELE.

Notice is hereby given, that by a deed dated July 14, 1863, executed pursuant to an order of this Court, and duly registered at the Patent Office, London, C. SCHIELE ABSOLUTELY ASSIGNED TO MARTIN SCHUNCK, Esq., the PATENTS, comprising the following inventions:—

SCHIELE'S TURBINE WATER WHEELS.
 FLATT AND SCHIELE'S SILENT FANS, including AIR PUMPS or GAS EXHAUSTERS.
 SCHIELE'S BLAST ENGINES.
 SCHIELE'S GOVERNORS for STEAM ENGINES and WATER WHEELS.
 SCHIELE'S VENTILATING ENGINES.
 SCHIELE'S CENTRIFUGAL PUMPS.
 SCHIELE'S TURBINE STEAM ENGINES.

The North Moor Foundry Company, Oldham, Sole Licensees.
 Messrs. Hick and Son, engineers, Bolton, Sole Licensees.
 Messrs. Clark and Charney, engineers, Preston, Sole Licensees.

SCHIELE'S FEED PUMPS.
 SCHIELE'S VARIABLE EXPANSION GEAR.
 SCHIELE'S LUBRICATION.
 SCHIELE'S HYDRAULIC TRANSMISSION OF POWER.
 SCHIELE'S HYDRO EXTRACTORS.
 SCHIELE'S CONTACT GEAR.
 SCHIELE'S CONTINUOUS WHEEL CUTTING MACHINERY.
 SCHIELE'S NUT TAPPING MACHINES.
 SCHIELE'S OSCILLATION BREAK for GOVERNORS for RAILWAY TRAINS, &c.
 SCHIELE'S CONTINUOUS SCREW CUTTING MACHINES.
 SCHIELE'S APPLICATION of the ANTI-FRICTION CURVE to FOOTSTEPS of SHAFTS, to COCKS, VALVES, &c.
 SCHIELE'S HYDRAULIC WEIGHING MACHINES.

Mr. SCHIELE is not authorised, either by himself, or his partners or agents, to receive any orders, or transact any business, relating to the above.
 All applications for terms of license, &c., of inventions not already exclusively licensed, to be made to WILLIAM HADFIELD, Esq., civil engineer, John Dalton-street, Manchester; or to the North Moor Foundry Company, Oldham, who are authorised to treat, on behalf of Mr. SCHUNCK, for the same.

LEWIS, DARRSHIRE, AND ASHWORTH, 21, Brown-street, Manchester, Solicitors for Martin Schunck, Esq.

August 24, 1863.

THE NORTH MOOR FOUNDRY COMPANY, OLDHAM,

SOLE LICENSEES AND MANUFACTURERS OF
 SCHIELE'S TURBINE WATER WHEELS.
 FLATT AND SCHIELE'S SILENT FANS.
 SCHIELE'S BLAST ENGINES.
 SCHIELE'S VENTILATORS for SHIPS.
 FLATT AND SCHIELE'S MINE VENTILATORS.
 SCHIELE'S AIR PUMPS or GAS EXHAUSTERS.
 SCHIELE'S GOVERNORS for TURBINES.

SPECIAL NOTICE.

The NORTH MOOR FOUNDRY COMPANY, having found that some of their customers have had an impression that their machines could be obtained from other parties than themselves, beg to inform the public that they POSSESS the SOLE and EXCLUSIVE RIGHT to the ABOVE PATENTED INVENTIONS, and that they have not authorised any other parties to manufacture and sell the same.—For illustrated circulars, apply to the North Moor Foundry Company, Oldham.

Mr. SCHIELE has NO INTEREST whatever in the ABOVE INVENTIONS, and is NOT AUTHORISED to RECEIVE ORDERS or TRANSACT ANY BUSINESS in the same.

MESSRS. C. SCHIELE AND CO. beg to intimate that the PATENTS ASSIGNED by Mr. SCHIELE to Mr. SCHUNCK ONLY COMPRISE Mr. SCHIELE'S OLD PATENTS, taken out prior to 1860, and DO NOT COMPREHEND—

SCHIELE'S PATENT TURBINE WATER WHEELS of 1863.
 SCHIELE'S PATENT SILENT FANS of 1863.
 SCHIELE'S PATENT CENTRIFUGAL PUMPS of 1863.
 SCHIELE'S PATENT BLAST AND VENTILATING ENGINES of 1863.
 SCHIELE'S PATENT TURBINE STEAM ENGINES of 1863.
 SCHIELE'S PATENT CRUSHING MILLS and HAMMERS of 1860.
 SCHIELE'S PATENT WAVE POWER MACHINERY of 1860.

ORMEROD and SCHIELE'S PATENT STONE DRESSING MACHINES of 1862. Also, that Mr. SCHIELE'S PATENTS for LUBRICATION, HYDRO EXTRACTORS, HYDRAULIC WEIGHING MACHINES, and the APPLICATION of the ANTI-FRICTION CURVE to UPRIGHT SHAFTS, &c., have LONG SINCE EXPIRED, and Messrs. C. SCHIELE and Co., as well as the public in general, have full liberty to make use of these inventions.

Messrs. C. SCHIELE and Co. also intimate that they have NO CONNECTION whatever with the NORTH MOOR FOUNDRY COMPANY, of OLDHAM, and that such company are merely licensees of Mr. SCHIELE'S old Turbine and Fan Patents.

Parties desiring Mr. SCHIELE'S latest patented machines, which are cheaper, and guaranteed to be far superior to the old inventions, are requested to apply to C. SCHIELE and Co., Clarence-buildings, Manchester.

THE PROGRESS OF MINING IN 1862,

BEING THE NINETEENTH ANNUAL REVIEW.
 BY J. Y. WATSON, F.G.S., Author of the *Compendium of British Mining* (published in 1843) *Gleanings among Mines and Miners*, &c.

The EIGHTEENTH ANNUAL REVIEW of MINING PROGRESS appeared in the *MINING JOURNAL* of December 28, 1861, and January 4, 1862.

A FEW COPIES of the REVIEW of 1855, containing Statistics of the Metal Trade, the Dividends and Percentage Paid by British and Foreign Mining Companies, and the State and Prospects of upwards of 300 Mines. Also a FEW COPIES of the REVIEW of 1852, 1853, and 1854, MAY BE HAD on application at Messrs. WATSON and CUELL'S Mining Office, 1, St. Michael's-alley, Cornhill, London.

Also, STATISTICS OF THE MINING INTEREST. By W. H. CUELL.

WATSON AND CUELL'S MINING CIRCULAR, published every Thursday morning, price 6d. or 2s. 1s. per annum, contains Special Reports of Mines, and the Latest Intelligence from the Mining Districts, from an exclusive resident agent; also, Special Recommendations and Advice upon all subjects connected with Mining, and interesting to investors and speculators. A Record of Daily Transactions in the Share Market, Metal Sales, and General Share Lists, &c. Edited by J. Y. WATSON F.G.S., and published by WATSON and CUELL, 1, St. Michael's-alley, Cornhill. W. B. Messrs. WATSON and CUELL have made a selection of a few dividend and progressive mines, which they have reason to believe will pay good interest, with a probability, also, of a rise in value, the names and particulars of which will be furnished on application.

CORNISH NOTES (NEW SERIES).

By JOSEPH YELLOLLY WATSON, F.G.S., &c., &c., Author of the "Compendium of British Mining" (1843), "Gleanings among Mines and Miners" (1845), "Records of Ancient Mining," "Cornish Notes" (1861), &c. The New Series, revised, enlarged, and corrected, price 1s., are now ready, and may be had of Messrs. WATSON and CUELL, 1, St. Michael's-alley, Cornhill, London; and at the *MINING JOURNAL* Office, 25, Fleet-street, London, E.C.

Now ready, second edition, with latest Official Statistics, price 1s., or free by post for thirteen stamps.

BRITAIN'S METAL MINES:

A complete Guide to their Laws, Usages, Localities, and Statistics.
 By JOHN ROBERT PIKE, 3, Pinner's-court, Old Broad-street, London, E.C.

CONTAINS:—
 Mining for Metallic Minerals considered as a National Industry and as a field for Investment.
 Geological and Mineralogical Characteristics.
 The Mines of Cornwall and Devon.
 The Mines of England and Wales (Cornwall and Devon excepted), Scotland, Ireland and the Isle of Man.
 System of Raising, Dressing, and Selling Ores.
 The Statutes Court, and the Cost-Book System of Management.
 The Share Market.

OPINIONS OF THE PRESS.
 "One of the most valuable works for the investor in British Mines which has come under our notice, and contains more information than any other on the subject of which it treats."—*Mining Journal*.

"We believe a more useful publication, or one more to be depended upon, cannot be found; and with such a work in print it would be gross neglect in an investor not to consult it before embarking his money."—*The News and Bankers' Journal*.

IMPORTANT TO INVESTORS IN MINES.
 Now ready, second edition, price 1s. 6d., by post 1s. 8d.

THE HISTORY AND PROGRESS OF MINING IN

THE CARADON AND LISKEARD DISTRICTS.
 By WEBB AND GRACE, of the London Stock Exchange.

A good guide for investors, if they wish to invest in the mines of the district to which the book refers. By a careful perusal of its pages they cannot err. It is a carefully written and well-authenticated book.—*City Press*.

London: Published by E. J. Wilson, Royal Exchange, E.C.

NEW WORK ON THE VENTILATION OF MINES

By RALPH MOORE, Mining Engineer.
 Glasgow: M. Ogle and Son, Exchange-square.—London: Hamilton, Adams, and Co., Paternoster-row.

INVESTMENT.—MR. THOMAS SPARGO, STOCK, SHARE,

AND MINING BROKER, Nos. 294 and 295, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C., publishes, every Wednesday, a GUIDE to BRITISH and FOREIGN MINING, and OTHER INVESTMENTS, which should be consulted by all capitalists. Post free on receipt of six stamps.

MR. GEORGE HENWOOD, MINING ENGINEER,

LOCKHEAD HOUSE, LOCHWINNOCH, SCOTLAND, OFFERS his SERVICES and ADVICE on mines situated in any part of England, Scotland, Wales, Ireland, Isle of Man, &c. Mr. Henwood's extensive experience in his peculiar department of mining science is well known, and will be exerted to the utmost for the benefit of his clients.

MR. GEORGE SHEPHERD, CIVIL, MINING, AND

CONSULTING ENGINEER.
 Letters addressed 26, Throgmorton-street, London, E.C.

JOINT-STOCK COMPANIES.—ADVICE and (if required)

PROFESSIONAL ASSISTANCE GIVEN to any bona fide undertaking by Mr. LEE STEVENS 36, CANNON STREET, E.C.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly *re-ordered*: it then forms an accumulating useful work of reference.

THE HARTLEY FUND.—Can any of your readers inform me if South Wales is to receive a share of the Hartley Fund; and if so, what is the amount allotted to this important district?—HENRY RUSSELL EVANS; *Newport, Mon., Sept. 10.*

CLIFFORD AMALGAMATED.—It is not generally known that a second series run occurred in this mine about the time the last circular was printing, or being sent off. A second run in this deep mine is a serious matter, as the ground is so loose that a third or fourth may occur. Is our captain so much engaged that he cannot send an occasional report to the Journal, that we may have reliable information of our actual position? To show the necessity of this, I need only allude to the rumours of an in the county that, though the next dividend may be paid, as they have the ore at grass, after that we must look out for costs.—SHAKKOLDERS.

SHARE-DEALING.—Will some of your readers kindly give me their advice on the following grievance? In May last I sold, by a mining auctioneer, some shares in a limited liability company to a shareholder, and to the present moment he has not registered the transfer, but holds the certificates. How can I compel him to register, for I am still liable; but should the mine take a good turn, of course, he will soon register. Can you not use your powerful pen, and expose some of the dishonourable acts of mining speculators?—B. W.; *Birmingham, Sept. 9.*

NORTH MINERA.—I should feel obliged if some correspondent would inform me upon what conditions the preference shares of the North Minera Lead Mine were issued, and how much per cent. they would be entitled to out of the profits of the mine before the old shares would receive any profit, if there were any?—C.

SOUTH FRANCES, and WEST BASSET.—In reply to letters which have appeared in the last two impressions of the Journal, signed "One Interested" and "Another Interested," respecting the lawsuit now pending between the South Wheel Frances and West Basset, permit me to say that it does not advance the prospects of either mine by listening to the statements of parties having an interest in one or the other; but in order to settle this long-standing and much-to-be-regretted dispute, and put a stop to all further law expenses, I would propose a meeting of shareholders in both undertakings, and let their decision be binding.—J. E. CRANEY; *Homerton, Sept. 10.*

OLD WHEEL NEPTUNE.—In reply to your correspondent, "A Shareholder," I may inform him that a report appears in the Journal every fortnight of the progress made at the mine. Something must be done when our cost-sheets from the commencement have exceeded 300l. monthly. Only one of the directors have resigned, and that many months ago. Anonymous correspondents should be particular in writing to assert nothing but facts.—J. HARRIS.

SWANSEA COPPER SALES.—J. T. SNOW (Boston, U.S.)—The figures given on August 15 were incorrect, owing to the contents of fine copper in the ore being incorrectly stated, and the calculations made therefrom. The particulars were:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Fine cop.	Ore cop.
July 28	2281	0	148	£12 13 6	284 0	£25 19
Aug. 11	2075	101 13	0	13 11 6	284 0	85 12

Whether the variation in the position of the market be estimated by comparing the variation in the price of the copper in the ore, or by the variation in the price per unit, allowance would have to be made for the difference of produce, because the poorer the ore the larger number of tons the smelter has to smelt to obtain a ton of copper. Thus, when the produce is 5 per cent. 1 ton of copper is contained in 20 tons of ore, whilst when the produce is 20 per cent. 1 ton of copper is contained in 5 tons of ore. Then, as the cost of smelting depends upon the number of tons of ore smelted, it is obvious that to obtain a ton of copper the smelter's outlay will be four times as great in treating 5 per cent. ore as in treating 20 per cent. ore. Practically, from 9 to 15 produce is usually considered the best to smelt, other things being equal; so that the position of the market was about the same at the two sales in question. Mr. Snow correctly calculates the price per unit as 17-19 shillings on July 21, and 17-06 on Aug. 11, but as the produce was 14% in the former case, and 13-11-16 in the latter, the price which would have been paid for a given ore upon the latter date would have been rather higher than otherwise, as compared with the preceding sale. The amount of money paid for the whole of the ore purchased, divided by the number of tons of copper contained in such ore, will give the average price paid for the copper in the ore; and, in the same way, the amount of money divided by the tons of ore will give the average price per ton of ore, the fine copper divided by the tons of ore will give the average produce, and the tons of ore multiplied by the produce will give the quantity of fine copper, so that two terms being known the third can readily be ascertained. The standard is the price per ton of copper in the ore, with 21.5s. per ton of ore added for smelting. Thus, on July 28, the price of fine copper was about 85l. 10s., and the standard 101l. 11s., which leaves 15l. 12s. for smelting the nearly 7 tons in which the copper was contained.

Mr. John Calvert, C.E., has left England, on a tour of inspection in the mining districts of Sweden and Norway. On his return he will have to proceed to Portugal and Spain.

SHARE DEALING.—We never interfere in the sale or purchase of shares: neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, SEPTEMBER 12, 1863.

Desirous of giving a place to every discovery in constructive science, we readily devote a column to Mr. W. W. WARREN'S theory of an "Impregnable and Unsinkable Floating Casemated Battery, Submarine Gun and Armour-Plating adapted for Stationary Batteries, and for conveying Troop-ships," &c. The utility, practically proved, of the proposed system would be, to all the intents and purposes indicated, of great national importance; and even now, if it be only considered as merely the initiative of an improved mode of harbour defence, it is well worthy of consideration. Not being of that, fortunately, small section of the community who would confidently trust to treaties for restricting aggression rather than to that defensive attitude a commercial country, the protectress of vast and vital interests, should assume, and unremotely preserve, we hold that every encouragement should be given to the exertions of those who expend thought, time, and money in perfecting such appliances as the conservative providence of the age has wisely impressed into its service. The insular position of the United Kingdom offers a wide seaboard to an invading foe; and while the indomitable spirit within the country may rightly be estimated as rendering it impregnable, common sense suggests that the aid from without—that is to say, our floating defences—should be augmented and perfected by every means which genius and energy can create.

In these inventive times it would be folly to assert any system of construction infallible, and Mr. WARREN must excuse us when we hesitate to admit that perfection which he attributes to his project; nevertheless, it bears with it an effective ingenuity it would be an injustice to him, and to the public, not to recognise fully and frankly. In his circular, Mr. WARREN states that his invention has been for some months before the constituted authorities, and he points out that "by experiments carried out in Aug., 1862, the possibility of perforating under water, and sinking such vessels as the *Warrior* class, has been definitely proved."

No assertion to the contrary was ever made. Such floating leviathans, like those natural to the unfathomed depths, are, no doubt, assailable and vulnerable, but it will be granted that the force of assault brought against them must be powerful in the extreme to effect a conquest, while it is to be supposed no person will be found possessed of sufficient hardihood to deny that the attacking power has, in like manner, its weak points, and might in the affray receive a "Roland for his Oliver." To fight a hard battle without a casualty, or enter the list without a risk, is not to be thought of; therefore, the suggestion to inventors is not unwise or unnecessary, that in their ardour to wield the aggressive weapon they should not so frequently forget to render as perfect as possible its defensive uses. These remarks are not, however, more applicable to the invention under notice than to many others that have been during the last few years prominently put forward. The sin of omission referred to appears an ordinary weakness to which the speculative assailants of "iron-clads" are subject, and it is but mentioned on the present occasion as a hint for the future.

Regarding, then, the invention of Mr. WARREN even as a mere nucleus for the utilisation of a highly valuable principle in marine-battery building, it will be no unprofitable expenditure of time to look over his specification. The diagrams and coloured sections which accompany it do him great credit, being plainly and clearly defined, and satisfactorily descriptive of the system he would establish.

In the delineation of the floating battery "afloat," the formidable and massive character is impressively recognisable, but it is to the various sections of armour-plating, that of the repellent and opposing composite construction of wood heavily compressed, and confined in wrought-iron compartments—the cross-grain opposed to the action of the balls—together with the illustration of what are styled metallic hexagonal cells, inscribed "galvanised iron or copper water-tight compartments for constructing unsinkable ships, made in short lengths, firmly riveted and bolted together," which fix the attention of those interested in shipbuilding. Allowing the ingenious inventor to speak for himself, an abridged description of the proposed work cannot well fail to be interestingly suggestive to nautical engineers, as well as to the general body of the profession:—

"I prefer," writes Mr. WARREN, "constructing the centre portion of the vessel of rolled wrought-iron double-flanged vertical ribs, from 12 to 18 in. wide, and from 2 to 4 in. thick, firmly riveted and bolted together, or of angle or T iron, solidity and stiffness being the great object, on which are placed the various layers of malleable metals, as shown on drawing, taking care to stop all chemical or galvanic action, by means of bituminous

composition, mixed with hair; and were it not for the cost I would prefer using the finest copper-plating only over the iron, so as to act on the principle of a gradual tenacity of resistance, thereby easing and stopping the momentum, and distributing the shock, and thus prepare the iron-plating to finally resist, without splitting or destroying the plate; or the roof-deck and sides of centre position of battery can be protected with oak, or other wood, compressed in short lengths, and confined, the cross-grain of wood being opposed to the action of fire."

"The fore-and-aft and other portions of the battery, not requiring armour-plating, to be constructed with wrought-iron ribs, with an outer skin only, and to be filled in with hexagonal or honeycomb compartments of the maximum size of shot, made in short lengths, and firmly riveted and bolted together, so that in case of water entering it is confined to the track of the ball, after which it can be easily stopped, and by an arrangement of valves can be pumped out. To wooden ships, if armour-plated at all, I would apply the plating inside thereof, thereby making the external wood act as a buffer or padding. The porthole for discharging the submarine gun must be provided with watertight metal flap, instantly closing after the recoil of gun, the barrel of gun acting in a stuffing-box, with a water-tight box adjoining for adjusting cap to muzzle. The porthole to be provided with a slide valve, as an extra precaution. The cap can be made of any reasonable length, so as to displace a greater volume of water, and, if necessary, a telescope tube can be adjusted to porthole and elongated by a rack-and-pinion movement, or an ordinary muzzle-loading gun can be used, by simply applying a waterproof flexible hose, of sufficient length to allow of the recoil of gun, and having moveable collars attached to muzzle and porthole. The hexagonal cellular system is not only capable of displacing and carrying any weight of armour-plating, but is admirably adapted for the reconstruction of existing wooden ships, thereby making them seaworthy and unsinkable at a comparatively small expense, without the necessity of armour-plating at all, simply by placing the compartments a few feet above and below wind-and-water-line, and plating the hatchways to lower deck; and is likewise admirably adapted for the construction of life-boats, floating docks, &c., on account of its reducing the maximum amount of external injury to the minimum amount of internal damage."

Such is an embodiment of the details specified, and however there may be room for argument with reference to the practical applicability of a portion of them, the project advanced is invested with somewhat of comparative importance, from the fact that, as we are informed, the French authorities have adopted the cellular and certain other elements of Mr. WARREN'S plan; and, if they have been found worthy of trial by our spirited and enterprising neighbours, those who direct the naval destinies of this country will not find it foreign to their public duty to similarly test them. Were the whole system adopted by the Lords Commissioners of the Admiralty to-morrow, its originator, in our humble opinion, would have but a vague chance, if any, of remuneration. However, he is patriotically credulous enough to believe otherwise, for he states he has given up the invention to their lordships, leaving it in their hands to reward in the event of his principles being adopted. For such a liberal boon Mr. WARREN has received from the Admiralty "express permission to erect a target at Shoeburyness—its cost 5000l.—on the compressed wood cross-grain principle." Such a favour is surely on a par with the Rajah's gift of the white elephant.

Of one fact we have undoubted evidence, that the Americans are turning their earnest attention to the building of ships on the battery principle, having had practical experience of the effectiveness of those of the turret construction in the conflict which occurred between the Federal turret ship *Weehawken*, and the Confederate vessel *Atlanta*, an ordinary iron-clad, but three times as large as the *Weehawken*, and far exceeding her in the number of guns. Although much confidence was placed in the fighting capabilities of the *Atlanta*, and the ready capture by her of at least two of the iron ships brought into action, it is stated that it only took fifteen minutes, and five shots, from one turret vessel to make her haul down her flag, and yield herself captive. It must, however, be remembered, that the weight of metal was in favour of the *Weehawken*, which carried six 440-pounders; and it would appear that the broadside formation of ships of war makes them fight at considerable disadvantage when opposed by this turret class. The Federal Government, to say a truth (a somewhat startling one as times go), are most enterprising in availing themselves of the great facilities they possess in material for building those formidable engines of war. Already they have one upon a large scale, the *Roanoke*, with three turrets, and an armament of heavy guns, which they contend would make sad havoc among the best broad-port iron-clad Britishers in the world. This may be, in the opinion of some, mere Yankee "bunkum;" but it is well known the Americans are turning out heavy guns at the rate of one per day; and it would be as well that our Government, while confident in its own labours, should not reject this as a dense shadow of coming events.

THE FUTURE OF THE IRON TRADE.

A most bountiful harvest claims our gratitude. The reports from all parts of the United Kingdom, and from most parts of Europe and America, are of the most cheering character. "One of the finest growths of grain on record," is the description given by one agricultural reporter. "The finest harvest in the memory of this generation," is the judgment pronounced by another. Everywhere the same tone of unhesitating confidence and jubilation is to be heard. It may be confidently assumed that at least 10,000,000l. sterling have been added to the wealth of the nation from this source alone. This, of itself, will have a most beneficial tendency upon general trade and commerce. The iron trade already is being affected in a very marked manner from this cause, whilst bars and rails have advanced 10s. to 20s.; the elevation in the price of pig-iron has recently reached only 2s. 6d. per ton. Upwards of 60,000 tons of pig-iron were purchased this week in the Glasgow market, at from 55s. 9d. to 57s. 6d. per ton, cash; 56s. to 57s. 9d., one month; and 56s. 6d. to 58s. 6d., open three months. The development of the railway system over the world, more particularly in Spain, Austria, Russia, India, and Australia, continues to make satisfactory progress, and will lead to an immense absorption of iron. During the next ten years, it has been stated by the highest authority that the gold mines of the world will yield at least 200,000,000l. sterling; and the effect of this in the enhancement of prices it is impossible duly to estimate. For all these reasons we regard that the prospects of the iron trade have seldom been so bright, encouraging, and hopeful as at the present time.

DIMENSIONS OF THE EARTH'S COAL FIELDS.

We have it, on the authority of competent surveyors, that the great coal field of South Wales, the largest and deepest in Europe, covers a surface of not less than 1000 square miles, and has a maximum thickness of from 7000 to 12,000 feet in its coal measures. In this prodigious "book of time" there are, it has been computed, not less than 50 beds of coal, from 6 inches to 6 feet in diameter, and 25 of these are said to be each at least 2 feet thick. The smaller Forest of Dean coal basin contains, according to the "Memoirs of the Geological Survey," 81 coal beds in a thickness of coal measures of 2400 feet. From the same source (the *Survey*) we learn that the North Staffordshire coal measures have an aggregate depth of about 5000 feet; while those of the Newcastle district are believed to be at least 2000 feet thick, and to embrace a total thickness of coal equivalent to 60 feet. In the deepest portions of the extensive coal basin of Scotland, the upper productive coal measures of Mid-Lothian have been found by the Survey to possess a thickness of not less than 1800 feet. The number of the seams of coal wrought in the Lancashire field is in all 18.

Turning to other counties, the depths or thicknesses of the coal measures, and the numbers of the coal beds, will be found to be on an equally grand scale. Looking, first, to the western side of the Atlantic, North America displays commensurately with the breadth of her physical features generally, several enormous coal regions, three at least of which are the largest known upon the globe. One of these, the Appalachian basin, has a length of 875 and a maximum breadth of 180 miles, with an area in square miles of 55,500. Where deepest its coal beds have an aggregate thickness of 40 ft. A second, the coal field of Illinois, Indiana, and Kentucky, has length 370, maximum breadth 200, and area 51,100 miles. This basin has 15 or 16 good coal seams, with a maximum thickness of 50 ft. And the third and largest, but least opened, shows length 550, breadth 200, and superficial area 73,913 miles. In the anthracite basins of Pennsylvania the thickness of coal measures amounts to 3000 ft., while that of the workable coal is not less than 120 ft. The aggregate area of the five chief coal fields of the American continent amount, by a careful estimate, based upon the latest surveys and the best geological maps, to rather more than 200,000 square miles; a surface greater by about twenty times than the sum of all the coal fields of Europe, or, indeed, of the whole Eastern world.

The British carboniferous basins may be estimated to embrace some 5400 square miles of coal; the French a little less than 1000; and the Belgian about 510. Rhenish Prussia has 960; Westphalia, 380; the Bohemian field, some 400; that of Saxony only 30; that of Spain probably 200; and that of all Russia scarcely 100 square miles. Comparing the coal areas with the total surfaces of the respective coal-producing countries,

the United States has 1 square mile of coal to each 15 of land; Great Britain, 1 to every 22; Belgium, a like proportion; and France, but 1 of coal to every 200 of country. Adopting for the computed total area of the coal fields of the world 220,000 square miles, and accepting 20 feet (a low estimate) for the average thickness of the available coal, the entire mass of the fuel under the soil, for the future wants of man, amounts, by calculation, to a cubic lump of very nearly 10 miles linear dimensions, or to a square plateau of coals 100 miles wide in its base, and something more than 500 ft. in height. The British lump of coal is a cube of a little more than three miles in diameter.

In 1854, Great Britain extracted from her mines more than 64,000,000 tons. In 1861, the product was about 80,000,000 tons, equal to a cubic block of 430 yards in height. For the present year the probable product may be estimated at not less than the enormous quantity of 100,000,000 tons. In the preliminary report lately printed on the census of the United States for 1860, it is shown that the coal product of the state of Pennsylvania amounted in that year to about 11,500,000 tons, while that of all the coal-yielding states together exceeded 15,000,000 tons. In the year 1850, Belgium took from her mines nearly 6,000,000 tons; France some 4,500,000 tons, and Prussia 4,000,000 tons. It has been calculated that one-fifth at least of the present vast product in coal of the civilised world, which fifth part we may roughly estimate at nearly 30,000,000 tons annually, is applied in the smelting and manufacture of iron alone, and it is probable that more than one-tenth of the whole of the fuel lifted, or some 15,000,000 tons, is converted directly into mechanical power through the generation of steam for the propulsion of machinery.—Prof. ROGERS.

INSPECTION OF COAL MINES.—THE NORTH AND EAST LANCASHIRE DISTRICT.—Mr. Joseph Dickinson reports that the Acts and special rules have continued to work satisfactorily; the accidents and loss of life are at a low point, and the district has been free from any great accident. The explosions of fire-damp, although fewer than last year, and unattended with large loss of life, have continued too numerous to be creditable to the management. Accidents take place which might be prevented if some person of experience were appointed to manage the collieries. Mr. Dickinson has continued to issue circulars, pointing out the principal causes which had led to accidents, to firms in the district and to undertakers of collieries, along with a notice requiring a cover to be placed overhead, except under certain exceptional circumstances, when lowering or raising persons in shafts; also a recommendation to use self-acting fences at the top of the shafts. The recommendation has produced good effect. The fences, which were previously numerous, have been considerably increased in number, and during the past year not a single accident has happened by any person falling into a shaft, which the fence is intended to prevent; whereas, in the preceding year three fatal accidents of the kind happened in this district, and in all the districts a total of 29 lives were lost. The occurrence of three fatal boiler explosions at collieries in this district in one year is an unusual circumstance, there having been only one for many years previously. The first and second boilers burst apparently from the pressures at which they were worked being too high. On the 25th section of the principal Act (23 and 24 Victoria, cap. 151), which requires the miners' wages to be paid in money at an office which must be appointed for that purpose in the special rules, a decision has been given by the Manchester County Court (before Mr. A. Milne), in the case of Rudd v. Stanley. The decision seems to the effect that, although full control is given to the miner to obtain his wages in money at the specified pay-office, it does not entitle him to recover as unpaid wages a sum which he has duly authorised to be paid to a shopkeeper unconnected with the colliery for provisions. The more general use of safety-lamps for working with does not make so much progress as seems desirable. There is great dislike to work exclusively with safety-lamps. The lamps are not so handy, and do not give so good a light as a candle, which prevents the workman getting on so well with his work. It is urged that when a man works wholly with the small light of a safety-lamp it is very injurious to the eyes; that other accidents are more likely to happen. The objection of the workman is the principal obstacle, and it might seem to be doing too much to have to force men to protect themselves. But that is not all. The safety of those who are willing to protect themselves is also involved. Some owners also object, and the case seems to be a mixed one; but, by mutual concession, Mr. Dickinson trusts that satisfactory arrangements can be made. Where safety-lamps in this district have now for several years been in regular use accidents seem to be fewer than where candles are used. The miners, finding they have not good light, apparently trust less to sight, and attend more to making things secure. For this district the Inspector is satisfied that if safety-lamps are to become in favour with the working classes it is indispensable that the lamp should give good light. At present this can only be had accompanied with the objectionable glass at the illuminating part; but, as this objection is counterbalanced by so many advantages, and such glass lamps being secure under ordinary usage, it should not be the barrier to prevent the general use of such a desirable precaution against fire-damp. During the year an unusually large number of representations of danger reached the Inspector. Some of the representations were sent by parties interested; but others came casually. In one such casual instance, showing how indifferent miners sometimes are to their own safety, the colliery (Fulledge, which has since been stopped) proved to be ready for a general explosion. At three other collieries, where the interested parties complained, the neglect appeared inexcusable, and proceedings were taken for the penalties. The miners have a ready means of having danger removed. They should send intimation of the danger to the Inspector, otherwise there is very little chance of its coming under his notice before an accident happens.

COAL MINING IN NEW SOUTH WALES.—The formal opening of the Bulli Coal Mine was celebrated by a sumptuous banquet, which was attended by about 200 invited guests from Sydney and the leading gentry of the district of Illawarra. The steamship *Hunter* had been chartered to convey the party from Sydney, and amongst those who accepted invitations were the Hon. W. M. Arnold, M.L.A., Minister for Public Works; members of both Houses of Parliament, directors of various steam navigation, gas, and marine insurance companies, principals of the chief mercantile, engineering, and manufacturing firms, and others. Upon the first establishment of steam communication with England, and until about three years since, continued large shipments of coal from Old to New South Wales were made by successive companies, whose engineers had fostered a seemingly unconquerable prejudice against Australian coal. At length, however, the Australian Agricultural Company's coal was sent to be tested at Woolwich Arsenal, and from this highly favourable character of the engineering report, the Peninsular and Oriental Company have evinced great disposition to consume Australian coal to a considerable extent, and the proprietors of the Mimi coal mine, at Hexham, have entered into a contract with them to supply their mail steamers with coal during the current year. Coal no longer forms an item in the colonial list of imports, and is actually so high in the list of exports as to be surpassed only by wool and gold. The favourable report of Mr. W. Keene, the Government examiner of coal fields and mines, presented to the Commissioners of the recent International Exhibition in London, will be fresh in the memory of the readers of the *Journal*; and it is now stated that of the two new companies' mines, the Bulli and Warrah, great expectations are formed, not only by reason of the ascertained extent and value of the seams, but in consequence of the high qualifications as men of business of the directors of both companies. Of the present operations at Warrah we have yet no report, but the recent formal opening of the Bulli Mine gives promise that its yield will occupy a prominent place in the mining returns for the present year. And assuredly the proprietors deserve success in the fullest sense of the word. They had the most formidable difficulties to overcome. In the first place, the openings of the adits in the cliff were a considerable height above the level of the sea, and distant about 1½ mile from the shore. A late writer, describing the carboniferous formation on the east coast, speaks of this part of the coast line now opened at Bulli as having disadvantages, owing to the difficulty of approach to the shore from seaward, which he, however, adds, "in time the ingenuity of science will overcome." In a far shorter time than the writer foresaw the enterprise of individuals has surmounted every difficulty which presented itself. They first secured the services of Mr. William Weaver, who laid out and designed an iron tramway from the adits in the cliff to the shore; and also a noble pier, one of the most important works, either private or public, that has yet been constructed in connection with coal mining enterprise in the colony. It is 680 feet in length, and runs out into 21 feet of water at low tide. At the shore end its width is 21 feet, extending to 80 feet at the two shoals, on each side and under which two ships, each of 1000 tons burthen, can simultaneously load, either at high or low water; whilst smaller colliers, and other coasting craft, can load at the same time, close to the shore, where at low tide the depth of water is 15 ft. The massive piles are firmly driven, and are fixed abreast in rows of four, each row being 10 feet from the others, and strongly braced together with substantial timbers. The upper floor, or deck, of the pier is about 20 feet above high-water mark, and 7½ ft. below it is a lower deck, from which small vessels will load. The piles, flooring, boards, braces, &c., are all constructed of timber of the iron bark species, the growth of the colonies of Cumberland and Camden, and pronounced by engineers and shipwrights at the International Exhibition in London last year, and in Paris in the year 1855, to be the strongest and most durable of timbers, even surpassing the far-famed teak of India. The pier and railway have been constructed with the capital of a few private individuals, and without Government aid; but to render the anchorage at the pier more secure from south-east winds, it is intended to construct a breakwater on a reef that runs out some distance from the south headland; and in this design it is generally understood that the company depend upon receiving the aid of a parliamentary grant, in obtaining which they will, as we understand, have the cordial support of the Minister of Works, who very justly considers that those who have so energetically helped themselves are justly entitled to Government aid.

RAILWAY ROLLING STOCK.—The gradual increase in the rolling stock of the various railway companies is very striking. Thus the Bristol and Exeter, which had, at the close of 1861, 60 locomotives and 1173 carriages of various kinds, had advanced at the close of 1862 to 64 locomotives and 1229 carriages and trucks; the Great Eastern progressed from 325 engines and 8604 other carriages and trucks in 1861, to 390 engines and 8650 other carriages and trucks in 1862; the Great Northern, from 338 engines and 10,122 carriages and trucks in 1861, to 338 engines and 10,167 carriages and trucks in 1862; the Great Western, from 449 engines and 10,424 carriages and trucks in 1861, to 504 engines and 11,591 carriages and trucks in 1862; the Lancashire and Yorkshire, from 369 engines and 11,897 carriages and trucks in 1861, to 370 engines and 11,954 carriages and trucks in 1862; the London and North-Western, from 972 engines and 21,235 carriages and trucks in 1861, to 1031 engines and 21,390 carriages and trucks in 1862; the London and South-Western, from 177 engines and 4616 carriages and trucks in 1861, to 177 engines and 4821 carriages and trucks in 1862; the London, Brighton, and South Coast, from 145 engines and 3862 carriages and trucks in 1861, to 155 engines and 3889 carriages and trucks in 1862; the London, Chatham, and Dover, from 49 engines and 576 carriages and trucks in 1861, to 76 engines and 983 carriages and trucks in 1862; the Manchester, Sheffield, and Lincolnshire, from 123 engines and 4687 carriages and trucks in 1861, to 138 engines and 4700 carriages and trucks in 1862; the Midland, from 473 engines and 11,740 carriages and trucks in 1861, to 479 engines and 11,951 carriages and trucks in 1862; the North-Eastern, from 446 engines and 24,906 carriages and trucks in 1861, to 487 engines and 29,125 carriages and trucks in 1862; the North-London, from 68 engines and 2460 carriages and trucks in 1861, to 68 engines and 2582 carriages and trucks in 1862; the South-Eastern, from 189 engines and 3960 carriages and trucks in 1861, to 201 engines and 4179 carriages and trucks in 1862; the Stockton and Darlington, from 161 engines and 17,502 carriages and trucks in 1861,

to 155 engines and 17,568 carriages and trucks in 1862; and the West Midland, from 105 engines and 3743 carriages and trucks in 1861, to 115 engines and 4322 carriages and trucks in 1862. The Scotch and Irish lines have, of course, developed their rolling stock to a corresponding extent.

REPORT FROM NORTHUMBERLAND AND DURHAM.

SEPT. 10.—The Coal Trade continues to improve, although slowly; as the season advances the tone of the trade is evidently better, but before anything like general activity can prevail a great improvement must take place. The prospect for the sale of Hartley coal in future must be improved by the late disclosures respecting the relative merits of it and the Welsh steam coal: it is quite evident that for general steam purposes the Hartley coal is unsurpassed by any coal in the market, or likely to be brought forward. The only drawback, and the sole objection to its use, being the production of smoke when used unmixed by any other coal, but this production of smoke can be traced as the effect of careless firing, and neglect of the most simple apparatus, now well understood. It is a fact that by careful firing, and the use of smoke-preventing apparatus, this nuisance can be almost entirely prevented. This subject, it will be recollected, was alluded to by Sir Wm. Armstrong, in his Address on the opening of the meeting of the British Association. The extensive royalties of Woodhouse, containing the well-known Hartley and other seams, are in the market to let. The situation of these royalties is extremely good, being immediately adjoining the lately-sunk and most successful colliery at North Seaton, not far removed from the old-established and well-known collieries of Cowpen, Sleekburn, &c. On the whole, the sinking of the shafts in this district (that is, New Blyth) is a very simple affair. The depth is not very great, and no extraordinary obstacles are met with in the sinking, such as quicksands. This coal field is, therefore, in every respect a most desirable one, and suitable for investment—indeed, such an opportunity rarely occurs for securing a first-rate coal property. It is an excellent opening for a public company, as the risk would be very trifling, and the chances of success almost certain. The facilities for shipping the coals are good, the rising port of Blyth being immediately contiguous; while the docks at the Tyne or Wear at Sunderland are equally available, the very largest vessels having access to the latter ports.

At the Castle Eden Petty Sessions, on Monday, Mr. Wilson, the viewer at Thorley Colliery, was summoned by two of his workmen for the amount of wages due to them—37. 13s. 8d. This sum has been inadvertently paid to another workman named Fairley, who had decamped to America with the money. The magistrates declined to adjudicate in the matter, referring the business to a higher court. It appears that Fairley had been duly authorised to receive the money of these men on the pay previous to the one in question, when he had paid it over to them. It is, therefore, difficult to see in what respect the owners or their agents were to blame; if the authority referred to was in writing, as required by the 25th sec. 23 and 24 Victoria, chap. 151, and had not been cancelled duly in the same way, it would remain in force. However, the Court will, no doubt, set the matter at rest. The case shows that caution is necessary on the part of owners and their agents in dealing with cases where men do not receive their own wages.

An explosion of gas took place at the Benwell Colliery, near Newcastle, on Sept. 2, when one man (Adam Elliot) was severely injured, the result being his death, which occurred on Monday. An inquest was held yesterday by Mr. Reed, the Coroner, which was attended by Mr. Dunn, the Government Inspector. The facts elicited at the inquest were that the deceased was employed in holling a wall from one of the workings, which was 7 yards thick; it was done to shorten the way. They did not expect any gas there. There was not much gas. Gas was never seen in the colliery at that part before. In future safety-lamps are to be used. Thus Potts, the overman, in reply to Mr. Dunn, said they had held into several old workings before, and as no gas was found it was expected that no gas would be found in this case. Mr. Dunn and the Coroner objected to men being summoned on the jury who were employed on the colliery. It appears that nine of the jury were employed at the works and three not so employed. The jury returned a verdict "That deceased died from injuries received by burning, caused by an explosion of gas."

A company has been formed for the purpose of boring for minerals, &c., by steam-power. This, we think, will supply a want very much felt; the old method of boring by means of manual labour is a most tedious, slow, and expensive process. Several excellent machines have been invented and perfected for the purpose of superseding the old and antiquated method of boring, so that all that is required is such a company to bring the subject prominently forward. There can be no doubt that ample employment will be found, as boring by steam-power must excel the old method in every respect. The expense will be less, and what is, perhaps, of more consequence, much time will be saved, as the process of boring by machinery is much more rapid and certain than by hand-labour, so that by this means the contents of a mineral field will be proved in less than half the time consumed by the old cumbersome method. Another great advantage will be found in this, that by using steam-power larger holes can be bored, and thus better specimens of the minerals passed through will be secured, and more reliable data of the strata generally will be procured. It is hardly possible to overrate such an advantage as this, as many of the old holes bored to considerable depths are really of little value, owing to the very defective specimens produced of the minerals passed through, and of the strata generally overlying these minerals. The bore-hole now going forward at Middlebrough is an excellent example of what can be effected by steam-power in this branch of mining, and it is extremely doubtful whether the immense bed of salt found there could have been proved at the depth of upwards of 200 fathoms by the old method of boring; this hole is also 18 in. in diameter, an immense size when compared with other bore-holes, and this, as we remarked above, gives great advantages when specimens of minerals, &c., are concerned.

At the meeting convened for considering the best means of dealing with the portion of the Hartley Colliery Relief Fund surplus to be appropriated to the Southern Division of Durham Inspection District, it was resolved:—"That, in accordance with the report of the Hartley Colliery Accident Relief Fund, March 26, 1863, a committee of 15 (5 to form a quorum) be appointed by this meeting, on the part of the South Durham Mining Inspection District, to consider and report to a future meeting upon the most proper mode of dealing with the surplus fund." It was agreed that six workmen should be upon the committee, consisting of three members and three non-members of the society. The names of the workmen are as follows:—John Howie, W. P. Shield, and J. B. Leithead, as representing the Miners' Provident Society; Frederick Barnaby, of Kelloe; John Bell, of Sacriston; and James Pearson, of Hanwell Lane End. The gentlemen on the committee are—the Mayor of Durham, the Recorder of Durham, Colonel Stobart, Messrs. Lindsay Wood, Edward Boyd, Joseph Whitwell Pease, and Alderman Foster. Thanks having been voted to the Chairman (the Mayor of Durham) and acknowledged, the meeting was adjourned for a fortnight.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

SEPT. 10.—The adjustment of the wages question in South Staffordshire is, on the whole, progressing satisfactorily, though there are still some objections to overcome. The thin coal colliers are, in some cases, demanding an advance of 6d. instead of 3d. per day's stint, which would be an increase of 20 per cent. It is said that the earnings of the colliers have been somewhat diminished by the operation of the provisions of the Mines Inspection Act, which practically prohibit the employment of youths in mines under twelve years of age; the conditions of certificates of attending a school a certain number of hours weekly, which are required in the case of boys from ten to twelve years old being regarded as too complicated to be carried out by the butties. This limitation of the employment of boys in mines not only detracts from the income of a married collier with a family, but tends to divert the youths to other employments, in which no such restrictions prevail.

The steel iron puddlers, whose wages are in excess of those of puddlers of iron, ask for an advance of 1s. 4d. instead of 1s. per ton, contending that the larger sum is only for them a rise in proportion to that granted to the iron puddlers. The question is, however, whether there was as first the same reason for a rise in their case as in that of the iron puddlers, and this is one which only an accurate knowledge of the relations of demand and supply for labour of the two branches can determine.

The horse-nail makers about Dudley are asking for an advance of 6d. per hundredweight, which it is said the masters will refuse to give. In North Staffordshire, where the masters dealt promptly with the wages question, and anticipate any demand on the part of the men, no difficulty has arisen. With respect to the state of the Iron Trade, the demand continues very good. Most of the makers have some week's orders on hand, and buyers are very anxious to place considerable contracts at present prices, but are unable to do so, as the makers feel that a further advance is really necessary in order to meet the great addition which has been made to wages. How far the present active demand is of a permanent character is a question of great interest and importance, and which occasions considerable difference of opinion. One thing is quite clear, that stocks of iron have been reduced to an unprecedentedly low point, and that the merchants are now endeavouring to raise them. Since the breaking out of the American war, and even longer than that, it has been an exception for a work to have more than a fortnight's orders on hand. Buyers could get their ordinary orders executed in a few days, and hence they only ordered what they needed at the moment, feeling confident that they could at once obtain whatever they might want. But during the recent strike they found that they had to wait weeks, or even months, and the more so as in the course of the struggle there did, no doubt, arise an increased demand, especially for shipbuilding. Enquiries showed them that everybody was bare of stocks, and hence apprehensions arose, and orders of larger amount were given. This has been the case, also, in such trades as cut nails, of the cost of which iron forms the main element. Of course, stocks will soon be replenished if the works get into full swing, and it will then be seen how far the permanent demand will sustain higher prices. Pig-makers are still further advancing their demands, some asking 10s. more than the prices at which they were selling a month ago.

An allusion was last week made to the exertions made during the re-

cent contest for an advance in wages to induce the miners and ironworkers of South Staffordshire to unite together for the promotion of their interests, mainly, no doubt, to realize the highest rate of wages attainable. As was then observed, there is a natural repugnance to the formation of such combinations, for the past history of trade unions, the direction of which having had little faith in the laws of supply and demand, and too little tolerance for differences of opinion, have sought to regulate the workmen's wages, and all the relations of employer and employed, by an arbitrary standard, in enforcing which they have often been most harsh and tyrannical. But it may well be questioned whether the attitude of decided hostility is the wisest for the masters to assume towards these combinations. *Per se*, there is nothing unreasonable, nothing in opposition to the spirit of modern society, in such unions; the only danger is that they may be conducted in a spirit of unreasonableness and hostility towards the employers, and in ignorance of the actual state of the relations they seek to influence and direct. That such unions will grow there can be little doubt; it were, therefore, wise to consider how they may be preserved from becoming the fomenters and provokers of mutually injurious contests between employers and employed. Probably one of the best means of effecting this would be for the masters to recognise their existence, freely to communicate with those whom the men choose as their representatives, and still better would it be if the two classes could mutually co-operate in some unquestionably beneficial work. Such a ground of united action and mutual consultation is afforded by the want of better provision for the support of the men when disabled by sickness or accident, or for the sustenance of the widows in case of their death. The proposal of a grand national society for the accomplishment of these objects was from the first regarded as impracticable in the latter, but the necessity for such provision is undoubted, and the only hope of its being met lies in local efforts, which should be shared in both as to conception, management, and pecuniary support by both men and masters.

At the present moment a special opportunity is afforded for an effort of this character, by the offer which the committee of the Hartley Colliery Relief Fund are making, to divide, amongst the twelve mining districts of the country, a surplus of upwards of 20,000l., remaining from the fund which that dreadful accident prompted the public to subscribe, after its objects have been adequately provided for. The committee invite local organisation in communicating to the Inspector of Mines in each district, for the purpose of dividing and disposing of this large sum; and they wisely suggest that it should be made the nucleus of permanent funds in the several districts to meet similar cases. It is to be hoped that this noble outflow of public sympathy, to which a peculiarly impressive accident prompted, may be the means of establishing an organisation, in connection with which the miner may be able to make provision for the casualties which peculiarly attend his calling. In such a cause the masters may head a combination, instead of confronting one in hostile array; and such relation would do little to divert other combinations of workmen of injurious hostility.

REPORT FROM DERBYSHIRE, YORKSHIRE, AND LANCASHIRE.

SEPT. 10.—The Iron Trade is, on the whole, in an improving position, and the orders which have been received indicate a more healthy trade. The strike of the puddlers has had the effect of pushing the men in the Yorkshire district into branch societies for the regulation of their trade, and during the past week several have been started in connection with the head offices in Staffordshire. The Steel Trade is gradually improving, and there is a more healthy tone pervading the Cutlery Trades. The demand for armour-plates is going ahead, and the firms engaged in their manufacture are working both night and day. Messrs. Brown and Co., of Sheffield, the eminent armour-plate firm, treated upwards of 1800 of their workmen to a holiday at Matlock, the effect of which will not be felt on the demand for their goods. Mr. George Fletcher, of the South-west Ironworks, has recently commenced the erection of some large works at Litchard, Derby. There are to be called the Masson Ironworks, and as they are of very large extent, they will afford employment for a great number of hands. There is a largely-increased demand for rails, not only for the renewal of permanent way, but for other lines for which parliamentary powers have been granted during the last session of Parliament. The Coal Trade is certainly improving in these counties, though but gradually. The stocks are generally small, and the slightest impetus occasions a rally. There are many large collieries where the men have been only a-cayed about half-time; but in most cases now the additional labour has been at three days extra per fortnight. For hard coal the enquiry continues tolerably good, but there is a degree of distress in the iron-works, and a query for other sorts. Manufacturers are still greatly depressed, and the consumption is, therefore, not a third of what was prior to the American war. The operations at Edmond's Main are still going on actively, but no bodies have been recovered during the week. It is anticipated, however, that the water in the workings will be so far reduced as to admit of the recovery of the remainder of the corpse.

The Midland Company are about to spend 150,000l. in additional rolling stock, principally in carriages. Their new branch line, to connect the main line with Marple, and thence to Manchester, is progressing rapidly. The Midland have now powers for running direct from London to Manchester.

The Midland Mines at Ashover, are now sunk under the townships, but as yet the company have found nothing very profitable. They are in hopes of getting to some good workings, and, as the ancient mining history of this neighbourhood is very promising, it is believed that the company will be rewarded for their exertions in legitimate mining. We hear that there is a probability of a new company being formed to work this property, but we have no positive information to that effect. The other mines do not call for any special remark.

The local stock and share markets have been dull throughout the week, and the only business transacted has been in banks and railway stock, with the exception of a few shares in the Mill Dam.

REPORT FROM MONMOUTH AND SOUTH WALES.

SEPT. 10.—As predicted in former reports, the puddlers and others employed about the ironworks of this district have commenced a movement with the view of obtaining an advance in wages. There is no doubt entertained but that the ironmasters are quite prepared to meet the men in a liberal manner, and in another month it is expected that the labour difficulty will be completely and satisfactorily settled. The recent improvement in the Iron Trade is well maintained, and prices have now attained a point that enables the masters, in the majority of instances, to make a little profit. Buyers are tardy in giving out their orders at the advanced quotations, but the specifications in hand are sufficient to keep the works well employed, and the ironmasters show no disposition to accept contracts at less than the current rates. The general opinion prevails that the trade will be more brisk this winter than for the last two years, and present indications fully justify this conclusion. It is not, therefore, surprising that makers should show such firmness as regards prices. There is a considerable amount of activity evinced in some branches of the Coal Trade, and if the present demand continues for any length of time, I should not be surprised that the coalmasters will demand and obtain an advance of from 6d. to 1s. per ton. The exports from Cardiff (the principal coal exporting port of the district) since the commencement of the year are a pretty correct indication of improvement in the trade. During the month of August, 181,122 tons were exported, being an increase of 15,000 tons as compared with the average of the previous seven months. For the first three months of the year the exports were 330,564 tons against 371,524 tons for the same period in 1862, and 736,325 tons in 1861. A proportionate increase has taken place at nearly all the other South Wales ports. I mentioned in my report last week that efforts were being made to increase the floating accommodation at the port of Llanelly. An Improvement Dock Accommodation Committee has been formed, and a meeting has taken place between the members of this committee and some of the directors of the Llanelly Railway and Dock Company, and the preliminary arrangements, with the view of carrying into effect the desired extension were agreed upon. These arrangements were confirmed at the meeting of the Harbour Trust on Friday, and so the question has at last assumed a practical shape, and it only remains for the Llanelly Railway and Dock Company to take the necessary steps in the matter. It is estimated that the outlay will amount to about 30,000l.

Among the patents recently registered I notice the following:—B. Lawrence, architect, and W. Niblett, engineer, Newport, improvements in apparatus for regulating the flow of gas for purposes of illumination.

The directors of the Coleford, Monmouth, and Usk Railway Company have declared a dividend at the rate of 12. 12s. 6d. per annum on the ordinary capital, for the half-year ending June 30. The line is now leased to, and worked by, the Great Western Company. The Bristol and South Wales Union Railway was opened for passenger and light roads traffic on Tuesday. The line was formally opened on August 25, but, owing to the Board of Trade Inspector (Capt. Tyler) requiring certain alterations as regards the signals, and the fencing made more secure, a little delay has taken place. The new line cannot fail to be of vast importance to this district, as it will lessen the distance by railway to Bristol, the West and South of England, some 50 miles. It is expected that before long the steamboats at the New Passage will take the trains across, and then a very large coal traffic will be secured from South Wales to the West of England. The directors of the Monmouthshire Railway and Canal Company have just issued their report for the half-year ending June 30. The total receipts amounted to 59,707l., being an increase of 1861, as compared with the corresponding half-year. A dividend at the rate of 5½ per cent. per annum is recommended.

At the National Exhibition, held at Swansea, a prize of 10l. was given for "The best Manual of Metallurgy." Mr. Starling Benson, Mr. William Peacock, and Mr. J. Williams, were the adjudicators. Two compositions were sent in, and the adjudicators unanimously awarded the prize to "Nidum" (Mr. John Davies, of Llandovery).

Death of Mr. S. B. Rogers.—It was only a fortnight ago that you announced that your now late, esteemed, and able correspondent, Mr. Samuel Baldwin Rogers, was suffering from severe illness, and that he was in such straitened circumstances that an appeal to the sympathy of his friends, and those who had benefited by his suggestions, was absolutely necessary. You then stated that a subscription of 5l. 5s. had been forwarded to him as the contribution of the *Mining Journal*, and in announcing your intention to open a subscription list for him at your office you stated that the object of the subscription was to prove, for on Sunday last Mr. Rogers breathed his last, at the residence of his daughter, Mrs. More. The deceased gentleman spent a whole life in connection with the coal and iron trades, more especially the latter, and his abilities were generally admitted throughout South Wales, Shropshire, &c. About 50 years ago he managed several blast-furnaces, blown by water-power, at Roca. After this he went to Sir John Guest, at Dowla, and ultimately obtained an appointment under Messrs. J. and C. Bailey, at Nant-y-glo. Here he displayed unquestionable abilities in the selection and analysing of ores for the furnace, and he contributed in no small degree to the after reputation and success of the firm he was connected with. In this capacity he continued for something like 20 years; and, after old age and other circumstances prevented his being so actively employed as before, he still continued to be the recognised chemist and analyst of the Messrs. Bailey, and the latter allowed him a small weekly allowance. Five or six years ago this allowance was discontinued, and from that time to his death Mr. Rogers depended on his own weak efforts—necessarily weak from old age—and the kindness of his friends. We have numerous examples in history that great men's qualities and efforts are not appreciated and duly valued by the generation in which they live. Without going outside the limits of the history of the iron trade of this country, the fact is clearly proved. What recompense did Cort, and many others, receive for their invaluable suggestions and inventions? None whatever; but within the last twenty years the labours of Cort have been universally admitted to have saved hundreds of thousands—nay, millions—to the iron trade. The late Mr. Samuel Baldwin Rogers can with full justice be classed with Cort, and the treatment and recompense received by both bears striking simi-

larity. There can be no doubt, however, that future ages will award the subject of our memoir its due of praise, and then his inventions will be properly valued. It may be truly said that this is a truly just and a great mind, and it is to be hoped that future generations to the staple trades of the country will be more liberally treated during their lifetime. Amongst the many inventions and improvements which Mr. Rogers introduced, the most valuable and important was the "iron bottom" in the puddling furnace; and it appears that he received no benefit whatever from the invention, as he neglected to patent it. He also sketched out a plan for supplying London with gas, and he was the author of a standard work on "Iron Metallurgy" (published at the Mining Journal office), and amongst his lesser productions were "Suggestions for Establishing a Port of Call on the east side of the U.K.," &c. Deceased was a native of Cheshire, and he was in the 86th year of his age.

Our Swansea correspondent writes (Sept. 10):—The trade of the port continues brisk in all its branches, and a tide of prosperity appears to have set in. The large and continued influx of vessels is a sufficient indication of this, and the coal trade lately has been brisk in the extreme, the demands for foreign being extensive. The copper trade also evinces considerable animation. The tin-plata trade is the only branch in which depression is visible, and this, I presume, will continue the case as long as the American war continues. The traffic on the Swansea and South Wales Railway increases daily, fully justifying the want that existed for additional railway accommodation. It is rumoured (but as the rumour comes from a Great Western source, I have my suspicion that "the wish is father to the thought") that an arrangement is being talked about by which the tickets of the Swansea and Neath line will be available for the trains running on the Great Western from Swansea to Neath. This, of course, would be the first practical step to an amalgamation—a thing which ought not only to be vigorously avoided, but which would be in direct contravention of the principles of action on which the Swansea and Neath line was started, and on which the appeal to public support was made. I do not place much reliance upon the rumour; but as it indicates the course of the current, it is just possible there may be something in it, which it would be as well to nip in the bud. In the bankruptcy of the London and Allkali Company (Hunt and Co.), I find that the bankruptcy has been annulled, much to the dissatisfaction of local creditors, some of whom are clamorous thereat. The works still remain closed. The foundry at the Hafod Works progresses rapidly towards completion, and a manager is talked of from the neighbourhood of Lancashire. The branch of the Bank of Wales, established here, grows in popular favour, and, I understand, doing good business, under the careful and judicious attention of the manager, Mr. Geo. Allen. I hear from private sources that Mr. Richard Fothergill, of the Aberdare Iron and Coal Company, and Mr. F. S. Hankey, the eminent banker, are now the proprietors of the Plymouth Works, with all their important dependencies. These works were held by the late Mr. Anthony Hill, and include, with their dependencies, extensive hematite mines in Whitehaven, well-built blast-furnaces, splendid finishing departments, and a vast field of ironstone and coal. An important development of the estate is fully anticipated in the hands of the new proprietors, Mr. Fothergill's name being among those of the most enterprising in South Wales.

The arrivals at Swansea include—Clarissa Aldina, from Almalva, with 100 tons of copper ore, for Henry Bath and Sons; Hampshire, from Cuba, with 693 tons of copper ore and 42 tons 11 cwt. of copper regulus, for the Cobre Mining Company; Elizabeth, from Cherbourg, with 116 tons of iron ore, for the Dowlais Iron Company; American, from Cherbourg, with 70 tons of iron ore, for Walters; Deseraiyer, from Caldera, with 475 tons of copper regulus and 12 tons of cobalt ore, for Henry Bath and Sons; Norden, from Bado, with 5 boxes and 2 barrels of copper ore and 115 tons of copper, to order; Ada Letitia, from the Cape of Good Hope, with 140 tons of copper ore, for Richardson and Co.; Ernest Augustine, from St. Malo, with 116 tons of zinc ore, to order; Jean Baptiste, from Cherbourg, with 80 tons of iron ore, for the Dowlais Iron Company; Mangosteen, from St. Jago de Cuba, with 600 tons of copper ore, for Richardson and Co.; Sylvan, from Cherbourg, with 80 tons of iron ore, for Walters.

REPORT ON CORNWALL AND DEVONSHIRE.

[FROM OUR CORRESPONDENT IN TRURO.]

SEPT. 10.—Cornish mining industry is especially distinguished from any other industry of similar magnitude in this kingdom by the great proportion of "outside" capital invested in it. Railways, docks, and other works of like nature, are no doubt to a great extent cosmopolitan as to the sources from which they draw their capital; but in the other great industries of the kingdom the capital for their development is essentially of local origin—drawn from their immediate neighbourhood, or from localities sufficiently near to enable a personal supervision. It would be difficult to arrive at any very exact estimate of the relative proportions of Cornish and "outside" capital invested in the working of the mines of this country; but it is quite clear that of the money expended a very large proportion is brought into the country. As a rule, local shareholders in Cornish mines do not invest their money on the speculation of the mine alone, but with a view also to collateral advantages. Merchants and tradesmen of every class—from the leviathan proprietors of a monopoly port down to the pettiest village huckster—take up shares with the object, avowed and unavowed, of pushing their trade; and, almost the whole trade of Cornwall being dependent on mining, people in business have really scarcely any option but to do so. The local "merchant" shareholder has not merely a prescriptive right to monopolise the supplies of the mine in his branch of trade, but he also considers that he has, to a great extent, a claim on all connected with the mine for their custom, so that the ramifications of understood relations, between local trading shareholders and the mine and everyone connected with it, is far more complicated, and more deeply rooted, than anyone not intimately acquainted with the system pursued in Cornwall could at all imagine. Practically, there are scarcely any local adventurers in Cornish mines except those who reap, or expect to reap, collateral advantages. There are, no doubt, a few enthusiasts who take shares in mines without having goods to sell, or relatives to push into a situation; but they are so few, and enjoy but such very little consideration among their keener neighbours, that for all practical purposes they may be left out of consideration.

It might be thought that, under such circumstances, local trading shareholders would realise inordinate profits; but experience shows that this is really not the case. There are so many of these "merchant" adventurers, that there is frequently a pretty active competition amongst themselves, which may to some extent account for this, although its real cause lies deeper. In fact, the system is a bad one, and like all bad systems, it can rarely be productive of good to anyone. Everyone knows the immense prices which Cornish mining frequently affords; and I have more than once in these columns expressed my decided conviction that, as a whole also, Cornish mining might be made as profitable a branch of industry as any pursued in this country. That it is not so—an unfortunate but patent fact—is due to the multiplication of operations that never ought to have existed; and those owe their origin, in no small degree, to the readiness with which local merchants take up shares in concerns in which, as mines, they have no confidence, for the sake of pushing their trade—hoping by their gain in the latter to more than compensate their probable losses in the former. With such a nucleus of shareholders, and by operations too well known to need description, a body of "outside" shareholders is got together, and an enterprise is launched which had better never have existed, and with respect to which the object of the local shareholders is to get as much as they can from supplies and salaries, without regard to the working of the mine, in which they have little confidence.

As I have said, such a system is bad—radically bad. Of course such a class of mine is no true representative of typical Cornish mining: if it were so Cornish mining would soon come to an end as an industry. But there is a sufficient number of such to weigh down and throw discredit on more sound undertakings, and it is not to the credit of the county—not to its profit either—that such things should be encouraged by local people, who should (and indeed do) know very much better. Many people out of the county understand pretty well how all this is managed; but they generally make one great mistake—they are under the impression that it is a very profitable system to the merchant, which, however, everyone who knows the county must be aware is really not the case, at least at present. I do not, of course, mean to say that Cornish merchants who fall into this system—and even those who most dislike it, and many of them do, have scarcely an option—carry on a losing or a very bad business; but I certainly can say that, compared with what is done in other parts of England, they do not do a good business. Even with the most limited amount of competition, a continued succession of calls on bad mines soon reduces the highest possible profits to a minimum. I believe it to be a fact beyond all question—and I know this opinion is shared by many of the ablest and most eminent among Cornish merchants—that traders who supply mines would do very much better, and so would the mines too, if they did not mix up taking shares with their business; but adventure in mines on their intrinsic merits, quite irrespective of supplies.

It may be asked how it is, if the merchants find the present system so slightly profitable, they should still persevere in it, particularly considering the amount of odium which they incur by it—an odium which it would thus appear is not compensated for by any proportionate profit. It would be difficult to answer this question off-hand, but it is obvious that it is no easy matter to break through a system so time-honoured as "merchant-adventurers" in Cornwall—although the system may, and indeed has, in the present position of trade and mining industry, become a gross anachronism. As things stand at present, no firm, however influential, could venture, without extreme risk, to break through the system. *Bongré, malgré*, they are obliged to take shares in lots of mines with which they would much rather have nothing to do; but being forced into this position, they are, of course, under the necessity of getting as much as they can out of the supplies, by taking every advantage of their position as adventurers by influencing the agents of the mine, &c., according to the

methods well-known and sanctioned. I do not desire to cast one word of reproach at the leading Cornish merchants,—indeed, I think they have been subject to most unjust odium; for, from my personal knowledge, I am satisfied there is no more upright and honourable body of men in the kingdom. They have, unfortunately, become involved in a system difficult to break through; but I am satisfied no one is more aware of its unsoundness, or more thoroughly desirous of a change, than some of the leading Cornish merchants. Indeed, in many respects, they are as long-suffering a race as many of the "outside" shareholders themselves. It is not the etiquette for leading merchants to realise their shares, if even they have an opportunity of doing so; and the credit which they are expected to give in many cases is quite incompatible with their supplying at small profits. If the interests of the leading merchants and the "outside" shareholders—being those who really supply the funds for the working of our Cornish mines—are equally opposed to the present system, it may be asked, Who is it that is interested in maintaining it? To answer this question would exceed my limits this week, and therefore I must postpone it until another occasion. But that the subject is one that requires to be candidly discussed in the interests of Cornish mining, and, above all, in the interest of the out-adventurer, seems to me too obvious to render any apology necessary. Indeed, it is becoming every day more clear that if the latter is to have a chance of fair profit for his investment—and unless he has such a chance the stream of outside money now flowing into Cornwall must, sooner or later, stop—there must be a very considerable change in the Cornish system, which, however suitable at the time when it originated, is inapplicable to the present state of things.

THE LONDON ASSOCIATION OF FOREMEN ENGINEERS.

On the night of Saturday the 5th inst. the ordinary monthly meeting of this society took place at 35, St. Swithin's-lane, City.—Mr. Jos. NEWTON, of the Royal Mint, occupying the chair. After the minutes of the previous meeting had been read and confirmed, the auditors for the past half-year brought up their report; this was of a most satisfactory character, and showed that, in both a financial and numerical sense, the Association of Foremen Engineers was prospering. The amount invested in Bank stock, in the Savings Bank, and held by the treasurer for meeting current expenditure, approached 4000l. whilst the number of ordinary and honorary members was 95. The library fund, which is separate and distinct from the general fund, was steadily increasing as also was the library itself. It is needless to say that the auditors' report was, under such circumstances, well received, and cordially accepted by the members. After this pleasant part of the evening's proceedings had been accomplished, the President called upon Mr. Gettiffe to read his promised paper, "On an Apparatus for Preventing Boiler Explosions and Railway Accidents."

Mr. GETTIFFE, after some very unnecessary remarks as to his own incompetence for the task he had undertaken, proceeded to comply with the Chairman's request. The apparatus to which he proposed directing the attention of the assembled practical men, he said, was not an invention of his own, but that of M. Auguste Achard, a French engineer. It was a combination of mechanical and electrical appliances, which made the apparatus automatic, and almost infallible in its action. A full-sized model placed on the table, and before the meeting, tended to render the expounder's explanations much more intelligible, though without a diagram it is somewhat difficult for us to convey to our readers an exact idea of its peculiarities. Briefly it may be stated that the claims of the safety-ensuing apparatus, so far as the boilers of stationary engines are concerned, consists in its ensuring a constantly level feed under all the inducements to variation arising from unequal work upon the engine. The float in the medium for exciting or interrupting the circulation of an electric current, and this, again, causes, by very simple means, a compound ratchet-wheel and levers to open or close the feed-cock of the boiler. The slightest subsidence or elevation of the water level induces thus a movement of the feed-cock in the direction required for the correction of the evil. To us it seems that the apparatus, which is small, and by no means costly, is admirably adapted for effecting its important purpose. It was stated, moreover, that it might be seen in daily action at the works of Mr. Cater, engineer, the Grove, Southwark, and that gentleman, in a written communication to the society, asserted that it was most effective, and seemed "almost endowed with intelligence." These who are interested in the subject, may possibly feel disposed to visit the establishment in question, and judge for themselves. As regards the application of the "Embryage Electrique"—for that is the French title of the apparatus in question—to the prevention of railway accidents, Mr. Gettiffe went on to show that by a very ready adaptation of it the intercepting or actuation of an electric current might be made to engage or disengage the whole of the brakes on a railway train simultaneously or alternately. It would require much space to follow the author of the paper through his elaborate statement of the mode by which these desiderata could be accomplished; but we should be doing M. Achard injustice were we not to say that his plans are ingenious and practical. No remarks of ours can heighten the degree of importance which attach to the possession of a complete control over a railway train in motion. The contrivance described so ably by Mr. Gettiffe does appear to us to contribute largely to that end. Hence we recommend it to the notice of railway companies and the public, who are alike interested in such improvements, the one pecuniarily, and the other vitally. On the conclusion of the paper a discussion arose as to some minute points of detail about the apparatus. This was shared in by Messrs. Ives, Briggs, M. Jones, and Bragg, who were replied to by Mr. Gettiffe, and, at its conclusion, the President proposed a vote of thanks to the last-named gentleman. In doing so he expressed his satisfaction with the amount of information which had been imparted to the society on the occasion. He felt assured that electricity, in time, becomes the universal handmaid, as it were, to mechanical science, and it would be well for mechanical men to study its phenomena with zeal. M. Achard had "marshalled them the way that they should go," and following in his wake they might hope to attain equal, if not greater, success. The vote of thanks, carried by acclamation, was acknowledged by Mr. Gettiffe, and the well-attended meeting came to an end at 11 o'clock.

[It was gratifying to observe the close attention and critical judgment which the foremen engineers brought to bear on the subject before them, as it was to note the fact that bad weather had no influence in lessening the number present at this meeting.]

THE BRITISH ASSOCIATION—NOTES.

ON THE APPLICATION OF MACHINERY TO COAL-CUTTING.—Mr. SAM. FIRTH said—Numerous efforts have been made during the last 50 years to bring coal-cutting in mines under the influence of mechanical power, but in no case, I believe, except at the West Ardsley Colliery, has continuous operation survived the experimental period. I do not expect that the introduction of machinery into coal mines for the purposes named would materially diminish the number of persons employed, but rather that the effect would be to meet the increasing consumption. That increase may safely be taken at 2,000,000 tons per annum, and to supply this increase would require an annual increase of labourers amounting to about 3600. Thus there would not be any displacement of labour. The steam-engine has a 20-in. cylinder, and the air-pump 18-in. The air is worked at a pressure of about 50 lbs. to the square inch. The air is conducted down the shaft in iron pipes of 4 in. in diameter, and thence to the workings (about 800 yards) in gas piping, and down the face by India-rubber piping of 1 in. diameter, which is connected to the machine. The machine is moved on iron rails laid on cross iron sleepers, and is propelled a little, after each blow of the pick, by the hand-wheel. Generally, the machine is passed three times over the face of the coal, each time with a longer pick, to gain the requisite depth for taking down. The first cut being 18 to 20 in., the second 9 to 11 in., and the third from 6 to 8 in., 3 in. being the depth aimed at and accomplished. The actual quantity of work done in six consecutive days of eight hours each, by one man with one machine, was 618½ yards, or about 800 tons of coal. The man is attended by two boys, who clean out the groove, and remove the coal thrown out by the machine. In the West Ardsley seam a man will average 7½ yards of coal a-day, so that if the machine were worked by shifts of eight hours, three men and six boys would do the work of 40 men, and that, too, the most severe and trying work in the pit. It must be understood that at West Ardsley the seam is somewhat favourable for the purpose. It is 4 ft. thick, having a good roof and floor, and is worked on the long wall system, with a somewhat soft bedding part, about 12 in. above the floor, and in this the work is done. The comparatively soft bedding, with hand-work, is fairly made, because both work in the same part of the seam. The machine thus far has only been put to "boring," or "killing," but the proprietors expect to effect "straight-work" by a different arrangement of the picks. The filling, and all other work of the pit, is untouched by this machinery. The air-power works admirably; and its use gives a cool and refreshing stream of pure air to the far distant workings, which issues from the cylinder at a temperature very little above freezing point. It will not be necessary to say here that the air-power is acquired by a much larger measure of steam-power; but this is not a material item at a colliery where so much engine coal is almost worthless. I am not prepared with the exact cost of saving in coal, but at West Ardsley this part of the question is, I believe, eminently satisfactory. I have been informed that some experiments have been made, within the last few days, at the Hetton colliery, by the West Ardsley machine; and although the seam is of a hard nature, the killing was done 3 ft. deep with a groove of 3 in. at the face and 2 in. at the back, giving an average cut of 2½ in. high; whereas the average height of hand-killing in the same seam is about 11 in. This saving of good coal from destruction is equal to an average of 9d. per ton upon the whole yield of the seam. Another machine of a different principle has been invented at West Ardsley, and promises to be a most useful one. It is on the direct-action principle, with a to-and-fro motion, from a cylinder mounted transversely upon the carriage, and regulated in a similar manner to the pick machine. This invention has not advanced so far as the "pick" but some recent experiments have given most satisfactory results. The complete success of this machine will be of great importance, as it will be more effective in "straight-work," "headings," and "drillings," than the pick. In conclusion, I may express the confident opinion that, at no distant period, every branch of mining will be accomplished by machinery; and if we look at these results from a humane point of view, the sooner they are realised the better it will be for all parties, and especially for the working collier.

IMPROVED STEAM-BOILERS.—Among the various objects which have been exhibited at the Corn Exchange, in connection with the meeting of the British Association for the Advancement of Science, are working models and drawings of steam-boilers, by Mr. William Inglis, of Montreal, Canada. These improved boilers deserve the attention of all who are interested in the production and use of steam. One of the principal objections to almost every variety of boiler now in common use is the defective circulation of the water; that while the tubes and flues for the passage of the flame and hot gases have been arranged with great care and ingenuity, the arrangements for the circulation of the water inside the boiler have been altogether overlooked, the result being in many boilers the overheating and burning out of the plates and tubes, on account of the particles of steam remaining in contact with the heated surface. In Mr. Inglis's boilers, the flues and tubes are arranged to promote the thorough circulation of the fuel, but the distinguishing feature in the mode of boilers by having them constructed in glass, the motion of the water and steam being distinctly seen while the boiler is in full operation. We may add, that several of these boilers are now being made in this town, under the superintendence of Mr. J. F. Spencer, consulting engineer, a large one being about completed at the works of Sir W. G. Armstrong and Co. Two others are also in course of construction at the works of the Messrs. Hawthorn. The construction of these boilers is suitable for very high pressures,

and those that are being made at Messrs. Hawthorn's works are intended for a pressure of 200 lbs. per square inch.

THE SUPPLY OF COAL.—If the statements made by Sir Wm. Armstrong are well founded (and as yet no one of any authority has come forward as the contradicter of the great artilleryist), the supply of our most valuable mineral is running so scant that the grandchildren of the present generation may see the day when the great national coalhole will be completely exhausted. The contingency, at a period near at hand, is so frightful a one that the mind is averse from looking to it; but such as it is, it must be considered deeply and in all its bearings as soon as the Parliament re-assembles. It is to be hoped, indeed, that no foreign question whatever—Polish, American, Turkish, Russian, or Scandinavian—will obtain a hearing until this, the most important of all pending questions, shall have been deeply reviewed. Meanwhile everyone of us in his individual capacity may do something towards remedying the crisis through which, as it appears, our country will have to pass. If it be true that the man is a public benefactor who causes two blades of grass to grow where only one grew before, in like manner each man is of use who makes half a chaldron of coal serve the purpose of a whole chaldron. The instructor who can teach us how this saving is to be effected is no other than our next-door neighbour—the Belgian. Let a Belgian cottage, or a Belgian parlour or kitchen, be visited, and it will be found that they are all warmed by stoves of various descriptions—some open, some closed—which, while varying in shape and principle, agree closely in the point of their being at least as efficacious, and infinitely more economical, than the grates and ranges commonly used in England. If the traveller, for instance, will take the trouble of looking over the kitchens at the Bellevue at Brussels, and the St. Antoine at Antwerp, he will be surprised at the small quantity of "combustible" employed in the preparation of a never-ceasing series of dinners and suppers—very superior, be it observed, to those sent up in the best of the English inns and hotels. It is probable that the quantity of fuel consumed in a day in either of the kitchens of those excellent hostels does not exceed that which would be got rid of in the preparation of their daily meals by John the footman, and the two maids, who, during their master's absence, have been left on board wages, in charge of his house in something-square. But if the Belgian is economical in the construction of his stove, he is not less so in the preparation of a large portion of the fuel with which these stoves are fed. In England the manner in which the dust and the small pieces of coal are wasted and destroyed is such as argues an apparent belief in the supply being absolutely inexhaustible. In many places fires are kept burning night and day, and for whole years at the pit's mouth for the consumption of that which is held to be rubbish of no value. Not so in Belgium. There the coal dust is carefully preserved, and, being mixed with clay or soft earth, is kneaded into cakes, which, when dried by the action of the sun and wind, form an excellent substitute for coal. In some parts of Belgium, indeed, this cake-making process is not insisted upon, the dust and clay are simply worked up together, and the compost, while still wet or damp, is laid upon wood and burnt.—CARBO: *Full-mill*, Sept. 7.

DR. BUCKLAND ON THE EXHAUSTION OF COAL.—The possible exhaustion of our coal mines, to which Sir William Armstrong's remarks have drawn our attention, is likely to become a matter of such general interest that it may be worth while to place a passage before your readers, which shows that an eminent geologist had long ago arrived at the same conclusion. Dr. Arnold, in a striking passage of his lectures on Modern History, in which he alludes to the probable disruption of the Northern and Southern States of America, refers also to several important geographical and geological features in our own country, which have influenced our national history. He then adds in a note:—"The importance of our coal mines is so great, that I think it a duty to reprint here a note of Dr. Buckland's, which is to be found in p. 41 of his 'Address delivered at the anniversary meeting of the Geological Society of London, February 19, 1841.'" What Dr. Buckland says on such a subject is of the highest authority, and should be circulated as widely as possible:—"As no more coal is in process of formation, and our national prosperity must inevitably terminate with the exhaustion of these precious stores of mineral fuel which form the foundation of our greatest manufacturing and commercial establishments, I feel it my duty to entreat the attention of the Legislature to two evil practices, which are tending to accelerate the period when the contents of our coal mines will have been consumed. The first of these is the wanton waste which for more than 50 years has been committed by the coalowners near Newcastle, by screening and burning annually, in never-extinguished fiery heaps, the waste, more than 1,000,000 chaldrons of excellent small coal, being nearly one-third of the large portion of the best coal mines in England. This criminal destruction of the elements of our national industry, which is accelerating by one-third the not very distant period when these mines will be exhausted, is perpetrated by the colliers for the purpose of selling the remaining two-thirds at a greater profit than they would derive by the sale of the entire bulk unscreened to the coal merchant. The second evil is the exportation of coal to foreign countries, in some of which it is employed to work the machinery of rival manufactures, that in certain cases could scarcely be maintained without a supply of foreign coal."—*Geological Society of London, p. 161, first edition.* Now, whatever we may think of the second of these alleged evils, the first, if it continues unabated, and if Dr. Buckland's statement was not exaggerated, is a very serious one. And we should be glad to know whether our existing geologists can either confirm or refute the opinions of Dr. Buckland and Sir William Armstrong on this subject.—W. C. L.

THE PERMIAN ROCKS.—In the account of the proceedings of the Geological section of the British Association at Newcastle-upon-Tyne, given in the *Times* of Sept. 3, I am reported to have said that "in the East of England there was no perceptible deposit which could be classed with the Permian." Now, geologists well know that there is an important development of these rocks (of which the magnesian limestone forms the principal part) in the county of Durham, whence the range southwards to Nottingham. What I stated was, that in the East of England there existed no such grand exhibition of the lower member of the Permian group (the *rothliefschale* of the Germans) as that which is displayed in the north-western counties of Westmoreland, Cumberland, and Lancashire, in which the lower Permian is an enormous accumulation of red sandstone and breccia. I further showed, that in these counties the Permian group assumed a tripartite character, and consisted of the before-mentioned inferior sandstones, a central magnesian limestone, and an upper sandstone, which is largely exhibited at St. Bees' Head and other places; the same tripartite arrangement being there maintained as that which I pointed out many years ago as prevailing in Germany and Russia. The name of Permian, which I suggested for the group which lies between the carboniferous rocks and the New Red Sandstone or Trias, was proposed by me in 1841, because the last-named geologist, I made the communication in question, one of the principal features of which was the determination of the real age of the great and valuable deposits of the hematite iron ore of Cumberland and Lancashire, by showing that some of these are actually worked through a cover of Permian breccia, thus proving that this one was formed in the Palaeozoic era, as had been suggested by Professor Phillips.—RODGERICK I. MURCHISON: *Alnwick Castle*, Sept. 5.

INTERNAL HEAT OF THE EARTH.—At the recent meeting of the British Association, Sir William Armstrong, in his inaugural address, states the increase of temperature below the earth's surface to be one degree of Fahrenheit for every 60 feet in depth. Now, Sir John Herschel states it to be one degree of Fahrenheit for every 90 feet (see article in "Good Words" for Jan.), while Mr. Edw. Hitchcock, in his "Religion of Geology," has the following passage:—"The rate of increase has been stated by the British Association to be one degree of Fahrenheit for every 45 feet." The following extract, on the same subject, is taken from the *Mining Journal* of Nov. 24, 1860:—"At the late meeting of the Philosophical Society Dr. Fairbairn made some observations respecting experiments conducted in the Dowlais field coal pit, for the purpose of determining the increase of temperature below the earth's surface. He stated that from these experiments a mean increase of one degree Fahrenheit for every 71 ft. had been arrived at." On comparing these statements a wide difference in the results will be observed, sufficient almost to lead one to conclude that the increase was really variable in the different districts where the experiments were tried. Perhaps some of your scientific readers will throw a little light on the subject, upon which there seems to prevail such a diversity of opinion.—W. H. P.: *Chirk*, N. W.

TEMPERATURE OF THE EARTH'S CRUST.—The difficulty in reconciling the different statements as to the rate of increase of temperature in descending through the earth's crust has a solution. That this earth was once a fluid mass bears mathematical demonstration. The constitution, appearance, and position of the "unstratified" rocks indicate that this fluidity was due to intense heat, and we conclude that we now inhabit the cooled surface of a once molten globe. The fact that the temperature increases with the depth, and that the strata are cooled and consolidated, coupled with volcanic phenomena and thermal springs, has induced the belief that the centre of the earth still remains in the state of fusion. If this be the case, and the rise of temperature in the interior of the earth in the various strata in which the observations were made—such large differences as to the rate of increase ought not to appear. But, in addition to this objection, there are many facts which militate against the "molten centre" theory. In the Sandwich Islands there is a volcano—Mount Lea—10,000 ft. high; 4000 ft. from its base there is a lateral crater, Kilanea. It frequently happens that one crater is in active eruption while the other is quiescent. Now, it is clear that these craters could not obtain their lava from the same reservoir, for the same pressure which forced the lava to the highest crater would also produce a jet 6000 ft. high from Kilanea. The density of the earth would be very much increased were the centre molten. It has been proposed, in order to meet this difficulty, that the temperature is so intense 150 miles beneath us that all matter is in a gaseous state; but unless our notions as to the possibility of containing a gaseous sphere in a liquid envelope materially change, this supposition must be abandoned. That this interior heat has no effect on the surface of the earth is inconceivable; for if a sphere of iron 12 in. in diameter, heated to 120°, be supposed to represent this molten centre, the crust on which we live will be but the thickness of writing paper, and what insulator can be found of such a thickness that the heat will be able entirely to repress even the low heat of 120°? But the supporters of the "molten centre" theory have a still more serious difficulty to contend with. By means of the time of day left us by Hipparchus 2000 years ago, we can prove that the earth has not cooled, or in other words that the day has not shortened; and can anyone be found daring enough to assert that a ball of intensely heated matter, covered with a skin of by no means the highest insulating powers, of a thickness only 1-160th of its diameter, could float in a space which has a temperature of 220° for 2000 years, without cooling even a fraction of a degree? The increase of temperature in descending mines to be accounted for if the "molten centre" theory be abandoned? On examining tables of experiments in mines, it will be found that the temperature only increases when the mine is working. Outfield engine-shaft, at a depth of 183 fms., had a temperature of 77°, so long as the mine was working; but, on being abandoned, in a few months it had cooled down to 66°, and in many months after it had reached its equilibrium, 54°. The highest heat, given in a table by Mr. Moyle, was found in the Wheal Abraham shaft, at a depth of 1400 feet, where the air was 90°. But since the construction of that table a lode was pierced in a Cornish mine, which contained water of so high a temperature that the miners were scalded; and it still retains the name of "Boiling-water Lode." Of ten abandoned mines, only one was found in which the temperature at all varied, and probably in that mine the temperature had not time to become disordered. In the Harnley shaft, for example, the temperature was 54° at a depth of 60 feet, and it did not vary the whole depth of the mine, 1160 feet. We must, therefore, seek some other heating agent than the "molten centre," since the abandonment of a mine cannot possibly affect the radiation of heat from the "molten mass beneath." Chemical action seems to be one of the chief causes of the phenomenon (the oxidation of the substances newly

BY ORDER OF THE SECRETARY OF STATE FOR INDIA
IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 14th instant, to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to SUPPLY—
CAKE AND SLIP COPPER.
And that the conditions of the said contracts (two in number) may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals may be left any time before 7 o'clock P.M. of the said 14th day of September, 1863, after which hour no tender will be received.
India Office, September 7, 1863.
GERALD C. TALBOT, Director-General.

MARTIN'S PATENT ANCHOR COMPANY

(LIMITED).
Capital £200,000, in 10,000 shares of £2 each.
(With power to increase to £100,000.)
10s. per share to be paid on application, and £1 10s. on allotment.
The company has, by the deed of Incorporation, taken power to extend its business, not only to the manufacture of anchors, but also to chain cables, and all other metal work relating to shipping.

Vice-President the Hon. Sir MONTAGU STOPFORD, K.C.B.

Directors.
Rear-Admiral W. H. HALL, C.B. (Director of the Peninsular and Oriental Steam Navigation Company).
GEORGE BROCKELHANK, Esq., Greenwich (Director of the Union Bank of England and France).

HENRY DANVERS CLARKE, Esq., Atcombe-court, Gloucestershire, and 20, Princes-square, Hyde-park.
Capt. W. O. YOUNG, Newman's-court, Cornhill.

Rear-Admiral Sir THOMAS RAILES T. THOMPSON, Bart., Manor House, Thorne Palace, Scarborough.
JOHN GARDNER, Esq., 23, Montague-street, Russell-square, and 136, Gresham House, City.

THOMAS YOUNG, Esq., 8, Rockville-street, Piccadilly.
EDWARD JEFFCOCK, Esq., Queen's-road, Hyde-park.
Capt. GEORGE DENNY, H.E.I.C.S., General Shipowners' Society, 29, St. Helen's.

BANKERS—The Union Bank of England and France, 83, King William-street; Metropolitan and Provincial Bank, Cornhill.
SOLICITORS—Messrs. Newton, Evans, and Co., 1, Wardrobe-place, Doctors' Commons.

BROKERS—Messrs. J. Hutchison and Son, Angel-court, Throgmorton-street; Mr. John Smith, Throgmorton-street.
AUDITORS—Mr. J. Holah, Tokenhouse-yard, E.C.; Mr. T. M. Tilly, 3, Duke-street, Adelphi.

SECRETARY—H. Ladbroke Clarke, Esq.

TEMPORARY OFFICES, 64, OLD BROAD STREET, E.C.

PROSPECTUS.

Martin's Patent Anchor Company has been formed for the purpose of manufacturing an anchor which is in every respect invaluable for the security of ships and the preservation of lives at sea. It has been proved, by experiments undertaken by the Masters and Brethren of the Trinity House, Newcastle, with a view to decide the comparative merits of all the anchors at present in use, that Martin's patent anchor possesses so many advantages over all others that it is certain at no very distant date to be generally adopted.

The necessity for the adoption of anchors and chain cables of the very best description, both in the Royal Navy and mercantile marine, is now becoming imperative, since it is nearly certain that the Legislature will shortly compel all manufacturers to submit their anchors and cables to a Government test. This measure will necessitate the use of the best mooring gear, and afford a favourable opportunity for the introduction of Martin's patent anchor, which has been proved to possess the following advantages over all others:

1.—It takes hold instantly, in whatever position it falls.
2.—Its holding power is 100 per cent. greater than that of the ordinary anchor, 75 per cent. greater than either Porter's or Rodgers', and 50 per cent. greater than Trotman's.
3.—Whilst its holding power so far exceeds that of all other anchors, it also bears the proportionate increase of strain required.

4.—Having no stock, and both flukes taking hold of the ground at the same time, it can neither foul nor become fouled, and, being composed of three main parts, it can be taken to pieces and stowed away with facility, the great advantages of which will be appreciated by all practical men.

5.—From the nature of its construction it dredges well, can be tripped, catied, and fished much more easily than any other anchor.

6.—Being lighter than any other anchor, labour is greatly lessened by its use, the cat-heads and bows are subjected to less strain, and the ship is made more lively.

7.—It is the cheapest of all anchors, where the quality of the material is equally good, and taking into account the difference in weight.

Few people are acquainted with the great extent and importance of the anchor trade of this country. England has about 40,000 merchant ships of all sizes afloat, and about 2000 new ones are built annually. Allowing three anchors to each ship, the number required will be about 120,000 in all. It is estimated that to supply wear and tear and loss consequent on shipwreck and other accidents, and to fit out new ships, above 15,000 new anchors are required annually. This is entirely independent of the requirements of the British Navy, and also of the large export trade in anchors.

It is confidently anticipated that one-fourth of the anchor trade of this country will fall into the hands of the company. In this case it would sell 4000 anchors yearly, averaging 1½ ton each, and representing, at a price readily obtainable, an annual return of 60,000l.

Martin's anchor can be sold at a profit on the manufacture of fully 30 per cent., and still be as cheap to the purchaser as any anchor with which it will have to compete.

The net profits of the company must, from the nature of the article which they supply, and the facilities under which the anchors are produced, be very large. Taking the above as a moderate calculation, and estimating the annual return at 60,000l., a very large dividend will be insured to the company.

The directors have made exceedingly advantageous terms with the patentees, by which his remuneration depends entirely on the profits realised by the company.

Negotiations for premises admirably adapted for the works are in progress.

About 500 of Martin's patent anchors have been already manufactured, and are at present in use.

If no allotment of shares takes place the deposits will be returned.

Prospectuses and forms of application for shares may be obtained of the bankers, brokers, or of the secretary, at the temporary offices, 64, Old Broad-street, E.C.

THE PATENT FILE COMPANY

(LIMITED).
Incorporated under the Companies Act, 1862.
Capital £100,000, in 10,000 shares of £10 each, of which not more than £20,000 will be required to set the works in full operation.
Deposit on application, 10s. per share. Payment on allotment, 10s. per share.
Calls of £1 per share, at intervals of not less than two months.

Directors.
CHAIRMAN—Mr. BERNARD GILPIN (William Gilpin, Sen., and Co., Edge Tool Manufacturers), Wedgwood, Cannock.

Mr. EDMUND BOUGHTON, Jun. (Messrs. E. Boughton and Son, Iron and Metal Merchants), Gloucester and Birmingham.

Mr. WILLIAM FIELD (Messrs. Brassey and Field, Contractors), Shrewsbury.

Mr. JOHN N. BROWN, Director of the Gloucester Wagon Company, Handsworth Birmingham.

Mr. CHARLES SAMUEL HAWKES, Merchant, Birmingham.

Mr. THOS. VAUGHAN MORGAN (Patent Plumbago Crucible Company), Battersea Works, London.

Mr. JOHN BREARLY PAYN, Director of the Birmingham Banking Company, Birmingham.

Mr. CHARLES T. PARSONS (Crawley and Parsons, Metal Merchants), Birmingham.

THE BIRMINGHAM BANKING COMPANY, and its branches at Dudley and Walsall.

The London and Northern Bank, London, and its branches at Leeds, Huddersfield, and Newcastle-upon-Tyne.

Mr. James Crowdy, 17, Serjeant's Inn, Fleet-street, London.

Messrs. Ryland and Martineau, Birmingham.

AUDITORS—Messrs. Coleman, Turquand, Youngs, and Co., public accountants, 16, Tokenhouse-yard, London.

CONSULTING ENGINEER.
Robert Charles May, C.E., F.R.A.S., 3, Great George-street, Westminster.

SECRETARY—Mr. Henry Howell, Birmingham.

LONDON SECRETARY (pro tem.)—Mr. J. Seward Rafter.

OFFICES.
27, MOORGATE STREET, LONDON; 29, WATERLOO STREET, BIRMINGHAM.

This company has been formed to manufacture files by machinery in lieu of hand labour, whereby the cost will be materially reduced and the quality improved: it is founded on the experience of similar undertakings in successful operation in France and Belgium.

Detailed prospectuses and forms of application for shares may be had at the offices of the company, 27, Moorgate-street, London, and 29, Waterloo-street, Birmingham; of the bankers of the company; and also of the following brokers:—The Members of the Birmingham Stock Exchange; Mr. RAMEL FERNTHOUGH, Manchester; Mr. RICHARD WITHERS, Liverpool; Messrs. JOHN WATSON and Son, Sheffield; Mr. JONATHAN DREWRY, Newcastle-upon-Tyne; Mr. W. H. GREEN, Gloucester; Mr. G. S. BRYANT, Bristol; Mr. GEORGE RIMSDALE, Alibon-place, Leeds; Messrs. AITKEN and MACKENZIE, Glasgow.

THE PATENT FILE COMPANY

(LIMITED).
NOTICE.—The Directors will PROCEED to an ALLOTMENT on the 30th inst. Applications for the remaining shares to be made before that date.
By order of the Board, HENRY HOWELL, Secy.

29, Waterloo-street, Birmingham, September 10, 1863.

THE NEW CONCORD SILVER, LEAD, AND COPPER

MINING COMPANY (LIMITED).
Incorporated under the Companies Act, 1862.
Capital £30,000, in 10,000 shares of £3 each. Deposit on application 10s. per share, and payment on allotment £1.
BANKERS—The City Bank, Threadneedle-street.
BROKERS—Alfred Bingham, Esq., 1, Copthall Chambers, E.C.
OFFICES, 11, TOKENHOUSE YARD, LOTHBURY, E.C.

ABRIDGED PROSPECTUS.

This company proposes to purchase the freehold estate of Wonwood, near Tavistock, Devon, consisting of 100 acres, and including the valuable lead and copper mines known as Wheal Concord.

This mine was worked many years ago, and £24,000 worth of lead ore obtained from shallow levels, when it was stopped in consequence of litigation between the company and the freeholder. It is now being worked on a small scale very successfully.

A provisional contract has been made for the purchase of the entire freehold, with all its minerals, and the plant of the mine, for £16,000, of which the vendors receive £7000 in paid-up shares.

Samples of the ore can be seen at the office, 11, Tokenhouse-yard, and prospectuses, and forms of application for shares, with the surveyors' reports, may be obtained also of the bankers and broker of the company.

Should no allotment of shares be made, all deposits will be returned.

JAMES H. COCK, MINE SHAREBROKER AND DEALER,

REDRUTH, CORNWALL.

J. H. Cock, having had 10 years' experience in the mining market, and being thoroughly acquainted with mines and their management, is in a position to advise or do business on the most advantageous terms. Cash or time bargains promptly attended to.

MR. W. HANNAM, MINING, SLATE QUARRYING, AND

GENERAL SHAREBROKER.

ROYAL INSURANCE BUILDINGS, KING STREET, MANCHESTER.

SHARES BOUGHT AND SOLD at current market prices, on usual commission. Reliable advice and information given on all investments. A Monthly Circular, recommending first-class dividend and progressive mines, also shares in two or three 'saint stock' companies of undoubted value, may be had on application.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN RE NANGLES MINE.

TO BE SOLD, pursuant to an Order made in a Cause Matthews v. Jorey and Others, dated the 16th day of July last, BY PUBLIC AUCTION, at the Registrar's Office, Truro, on Wednesday, the 23rd day of September inst., at Twelve o'clock at noon precisely.
2 (1024th) SHARES of the defendant John Dower; and
10 (1024th) SHARES of the defendant William Gundry Powning, Of and in the said MINE. JOSEPH ROBERTS, Plaintiff's Solicitor, Truro.
Dated Registrar's Office, Truro, September 9, 1863.

VALUABLE MACHINERY AND MINE MATERIALS FOR SALE.

MR. BAKER is instructed to SELL, BY AUCTION, at the NORTH TRELAUNY MINE, in the parish of Quiddehock, in the county of Cornwall, on Friday, the 18th day of Sept. inst., all the MACHINERY and MATERIALS on the above mine, viz.:

A 24 in. rotary STEAM ENGINE, 8 ft. stroke, with wrought-iron fly-wheel, shaft, and sweep rod. BOILER, 12 tons.
Balance bob, with gudgeon and brasses complete.
1 logging bob, with flat-rods, caps, and plates.
Iron pump, with drawing gear.
1 ditto planer pole, 9½ ft. long.
2 10 in. H pieces.
2 ditto windroves.
2 8 in. plunger poles, with stuffing box and glands.
1 7 in. ditto ditto.
1 8 in. sinking windrove.
2 8 in. flat bottom ditto.
Shells, 10 fms. high, with pulleys, brasses, &c.; puppet heads, pulley and brasses; 120 fms. of ¾ in. chain, large quantity of ¾ and other chain, slip, landing wagon, 2 tram wagons, shaft slip, 30 fms. of guide, 3 underground clatters with bearings, about 60 fms. of air pipes, 20 fms. of 10 in. launders, dressing shed, 4 jiggering butches and flooring, wheel-barrow, slaves, 2 beams, scales and weights, 4 tons of railway iron, 40 fms. of 1½ in. bucket rods, crusher with 2 ft. rolls, 2 sets of blocks, 10 dozen of rod pins, flange pins and rings, buckets, clacks, and seating, 42 in. smith's bellows, anvil, quantity of smith's tools, new and old iron, steel, carpenter's bench, screw stock, taps and plates, quantity of miners' tools, 150 ft. of new timber, old timber, flooring, a good kitchen stove, and the count-house furniture, consisting of tables, chairs, forms, &c.
Refreshments will be provided at Twelve o'clock, and the sale commence punctually at One P.M.

The captain on the mine will show the different articles.
The mine is situated about two miles from the Menheniot Railway station, on the Cornwall line.—Wadeham, Liskard, September 1, 1863.

DERBYSHIRE.

TO RAILWAY CONTRACTORS, COLLIERY PROPRIETORS, QUARRY MASTERS, AND OTHER PARTIES REQUIRING PLANT, DRAUGHT HORSES, &c.
ONE HUNDRED AND FIFTY WAGONS, THREE HUNDRED TONS of excellent FURNACE RAILS, STEAM ENGINES, MORTAR MILLS, POWERFUL CRANES, CRABS, SHEAR LEGS, NINE DRAUGHT HORSES, CARTS, &c.

MESSRS. WILLIAM PEARSON AND SON beg to announce that they are favoured with instructions from Mr. Thomas Stone, to SELL, BY AUCTION, on Monday, September 21, 1863, and following days, at Eleven o'clock in the morning each day, at Whaley Bridge, Chapel-En-Frith, and Buxton.

The RAILWAY CONTRACTOR'S PLANT, and MATERIALS, which has been used on his contract on the Buxton extension line of railway. Consisting of about ONE HUNDRED AND FIFTY capital EARTH and BALLAST WAGONS, from TWO TO THREE HUNDRED TONS of FLAT BOTTOMED CONTRACTOR'S RAILS, about 40 lbs. to the yard, and in excellent condition, with the shunts, points, and connecting rods; a large quantity of angle rails for a tramway, together with the wood iron-bound boxes; several tons of dogs and nails, from FIVE TO SIX THOUSAND SLEEPERS, a very large quantity of earth, kiln, and ashlar barrows; fourteen carts, two timber carriages, nine powerful, active, and remarkably useful draught horses, from five years old, averaging about sixteen hands in height, and in capital working condition; cart gear, twenty two pairs of loose wagon wheels and axles, platelayers' trucks, handcarts, stone trucks, powerful delf cranes, well fitted up travelling cranes; pile engines and tackle belonging thereto; eight pairs of shear legs, windlasses, chains, and guy ropes; a lot of very handy crabs, with wood and iron frames; mortar mills, both for horse and steam power; two steam-engines of about four and two horse power; steam boiler; iron and wood water-pumps; several tons of wagon couplings, and strong chains, for various purposes; twenty wrought iron tube for winding water, equal to new; smithy tools; ladders; fire grates, for colliery brows of night use; large clatters, iron pipes, &c.
Catalogues will be ready on Saturday, Sept. 12, apply at the place of sale; they may also be had (or will be forwarded by post) on application at the offices of the auctioneers, Standish & Wigan.

TO CAPITALISTS.

MR. CHARLES BROUGH WILL SELL, BY AUCTION, at the Queen's Head Hotel, Pilgrim-street, Newcastle-upon-Tyne, on Tuesday, the 29th September, at One P.M. precisely, ONE SEVENTH SHARE OF THE SEATON DELAVAL COLLIERY, in the county of NORTHUMBRIA.

This colliery is situated in the very centre of the great seam coal field of Northumberland, seven miles from the Northumberland Dock, on the River Tyne, and about two miles from the port of Blyth, with both of which shipping places it is connected by railway. The celebrated seam coal, known as "Hasting's Hartley," is the produce of Seaton Delaval Colliery, and the present value is about 90,000 choins per annum.

Further particulars may be obtained of Mr. T. G. HUNT, Backworth Colliery, Newcastle-upon-Tyne.

BACKWELL PARK FARM, BACKWELL, SOMERSETSHIRE.

VALUABLE FREEHOLD ESTATE, with the rich seams of COAL, IRONSTONE, and OTHER MINERALS under it.

MESSRS. FARGUS WILL SELL BY AUCTION, at their sale rooms, No. 4, Clarendon-street, Bristol, on Thursday, October 8, 1863, at One P.M. precisely (in One or Four Lots, as may be agreed upon), all that most DESIRABLE and COMFORTABLE FREEHOLD ESTATE, called BACKWELL PARK FARM, situate at BACKWELL, in the county of SOMERSET, about seven miles from Bristol, comprising:

—A substantial FARM-HOUSE, with barns, barton, stabling, and other agricultural buildings; and 128 A. 2 R. 1 P. of fine PASTURE and ARABLE LAND, now in the occupation of Mr. William White, whose tenancy will expire at Michaelmas, 1863; together, also, with the valuable beds of COAL, IRONSTONE, and OTHER MINERALS which lie under the estate and under that part of the Bristol and Exeter Railway by which the property is intersected.

This capital estate, the greater part of which consists of fine old meadow land, is situated in a ring fence, except where intersected by the railway; it is bounded on one side by the road leading from Backwell to Nailsea and Clevedon; the house and about 128 acres lie on the north side of the railway, and about 20 acres on the south side. The whole is in the very best of very sound and very rich strip on the west side of the farm, containing 37 perches, which is held on lease for lives.

The land tax on the estate is £10 2s. 8d. per annum, and the tithe rent charge 10s. per annum.

Particulars and plans of the estate are in preparation, and may shortly be had of Messrs. CLAYTON, COCKSON, and WAINWRIGHT, solicitors, 6, New-square, Lincoln's Inn, London; or of Messrs. FARGUS, 4, Clarendon-street, Bristol.

VALENCIA SLATE SLAB QUARRIES, COUNTY KERRY, IRELAND.

MESSRS. FULLER AND HORSEY are instructed to SELL, BY AUCTION, at the Auction Mart, London, on Wednesday, October 29, at Twelve, in One Lot (unless an acceptable offer be previously made by private contract), the EXTENSIVE QUARRIES and MILLS of the VALENCIA SLATE SLAB COMPANY, situate in the island of Valentia, County Kerry, Ireland. The works have been carried on by the present company for about 14 years, and a very large output has been made in opening the quarries, and in erecting the mills and the requisite machinery.

The quarries are situate on the side of a mountain, about 420 ft. above the sea level, and an opening has been made for working about 120 ft. wide, running into the mountain to about the same depth, uncovering a succession of platforms of slates of various widths. The slate rock lies most conveniently for working, at an angle of about 35°, and has a regular cleavage. The slabs are covered by wedges instead of by blasting, thus avoiding the large amount of waste occasioned by the latter process. The roof of the quarry is self-sustained, and is perfectly secure.

The quality of the slate is now well known and appreciated, and are taken in large quantities by the principal merchants in London and elsewhere. They take a beautiful and permanent polish, are particularly valuable for enamelling, and unaffected injuriously by furnace heat, and are raised in larger sizes than from any other quarry. The waste from the slab blocks is made into roofing slates, for which there is ample local demand.

The present yield is about 3000 tons of slate slabs annually, but by a comparatively small outlay in an extension of the workings this quantity may be doubled, the machinery at the mills being equal to prepare that quantity, and the demand at the present time being in excess of the capabilities of supply.

The mills are situate about 2½ miles from the quarries, are connected by a good road of easy descent, which is kept in repair principally at the expense of the county; but every facility would be afforded by the Knight of Kerry, who is the freeholder, for laying down a tramway by the side of the present road, which would much lessen the cost of transit. The mills are most advantageously placed, being immediately contiguous to the pier, at which vessels of 300 tons burden can load alongside, and there are no pier dues nor wharfage payable. The harbour of Valentia is both safe and commodious, and freights to London are about the same as from the North Wales ports.

The buildings are well arranged, and substantially erected. They are fitted with sawing and planing machinery of the best description, fitted by Blyth, of Limerick; and there are overhead cranes, tramways, and every appliance for saving manual labour. There are also 10 dwelling houses, manager's residence, and about 35 acres of farm land.

There is a plentiful supply of water for the purposes of the mills from a large open reservoir. The quarries and works are held by lease from the Knight of Kerry on easy terms. The present company have expended upwards of 40,000l. upon the property. They have succeeded in establishing the reputation of, and a market for, the slabs, and have thoroughly proved the existence and uniform character of the slate, and the extent to which the workings may be carried; and they have supplied and fitted the most approved modern machinery for the preparation of the slate for market, and it is confidently believed that the works are now in that state that, in the hands of two or three individuals, very profitable results may be anticipated.

The works may be viewed by cards only, which, with further particulars, may be had of Messrs. PALMER, NETTLESHIP, and ELAND, solicitors, 4, Trafalgar-square, W.C.; at the "Midland Counties Herald" Office, Birmingham; at the Gresham House, Saville-street, Dublin; at the Railway Hotel, Kilmarnock; at the Adelphi Hotel, Liverpool; at the Mart, London; and of Messrs. FULLER and HORSEY, 15, Billiter-street, London; FLE.

Dated St. Austell, August 19, 1863.

MESSRS. W. DERRY AND CO., MINING MATERIAL

MERCHANTS, ST. AUUSTELL, respectfully inform the mining public that they have constantly ON SALE EVERY DESCRIPTION OF MINING PLANT, IN STEAM ENGINES, pitwork, and dressing appliances, which they are prepared to offer on very advantageous terms, and such as will especially commend themselves to the projectors of new undertakings.—Applications to be addressed as above, or to the engineer of the company, Mr. W. H. GRAY, St. Austell.

Dated St. Austell, August 19, 1863.

RHONDDA VALLEY, GLAMORGANSHIRE.

MR. H. W. HARRIS WILL SELL, BY AUCTION, at the New Inn, Post-y-Fridd, on Monday, the 28th day of September, at Three o'clock in the afternoon, subject to such conditions as shall be then produced, all that colliery known as the BULLFA COLLIERY, situate at YSTRAD, RHONDDA VALLEY, GLAMORGANSHIRE.

This colliery is in the Rhondda Fawr branch of the Taff Vale Railway, is distant from the port of Cardiff 20 miles, and is in direct communication with the narrow gauge system of the West Midland and other railways.

The coal field has an acreage of 432 acres, or nearly, held under the Countess of Dunraven, for a term of 60 years, from the 29th of September, 1852, at a dead rent of £430, payable half-yearly, and at the following royalties:—Nos. 1 and 2, Rhondda vein, 6d. per ton (3520 lbs.); No. 3, ditto, 8d. per ton.

One level has been opened upon the property. The vein of coal now worked has a thickness of 3 ft. of first-rate quality coal, and lies at an inclination of about 1½ inch in the yard.

There are blacksmiths' shop, weigh-house, machine, screen, good siding accommodation, and everything necessary for the working of the colliery. The whole colliery is now in excellent condition for working and sending away a regular daily output of 100 tons.

The horses, trams, and plant of the colliery, according to a list produced at the auction, to be taken at a valuation.

For further particulars, apply to THOMAS CARR, Esq., on the premises, Ystrad, Rhondda; H. J. HOLMES, Esq., solicitor, Old Town Hall, Aberdare; or to the auctioneer, 140, High-street, Merthyr Tydfil.—Auctioneer's Office, September 1, 1863.

COUNTY OF LANARK.

UPSET PRICE REDUCED TO £25,000.

THE DUNDYVAN IRONWORKS, AND OTHER

PROPERTIES, SITUATED NEAR COATBRIDGE, FOR SALE.—There will be exposed to SALE, within the Faculty Hall, Glasgow, on Wednesday, the 30th day of September, 1863, at Two o'clock afternoon (unless previously disposed of by private bargain), the DUNDYVAN FIG and BAR IRONWORKS, comprising:

1.—The FIG IRONWORKS, consisting of EIGHT BLAST FURNACES, with all the usual working conveniences, counting-house, warehouse, stables, &c.

2.—The BAR IRONWORKS, consisting of FORTY-FOUR PUDLING FURNACES, with all the usual working conveniences, capable of turning out 350 tons of finished iron weekly, consisting of plates, rails, and bars in great variety.

3.—ONE HUNDRED AND FIFTY-FOUR WORKMEN'S DWELLINGS, known by the names of "Long Row," "English Square," and "Stone Row."

4.—THE LANDS OF DYKE, with the FARM BUILDINGS, STEAM ENGINE, THRASHING MILL, RAILWAY, &c., thereon.

The above subjects extend to above 35 acres imperial, and the minerals therein will be included, in so far as belonging to the expositors, with the machinery, fittings, and fixed plant at Dundyvan Pit.

5.—THE MINERALS HELD IN LEASE, consisting of DRUMPELLER, SOUTHER-HOUSE, and DALZIEL COAL, and WHIFFLAT and HOLEHILL IRONSTONE, with the whole MACHINERY, FITTINGS, RAILWAYS, and FIXED PLANT of every kind attached thereto.

The purchaser will be entitled to a lease, on favourable terms, of the valuable ironstone in the estate of Arden, extending to 1100 acres, or thereby, and to the option of taking at a valuation the moveable stock and utensils connected with the mines and ironworks; and also the farm leases of Whiffat and Southerhouse farms, including implements and utensils, all as per inventories.

For further particulars, apply to Messrs. AITKEN and MACKENZIE, accountants, Glasgow; Messrs. MACKENZIE and MOORE, mining engineers there; Messrs. MACVILLAN and LINDSEAY, W.S., Edinburgh; Messrs. MONCRIEFF, PATTERSON, FORBES, and BARR, writers, Glasgow; or Messrs. BANNATYNE and KIRKWOOD, writers there, the last of whom will exhibit the titles and articles of roup.

TIN SETT FOR SALE, IN THE LANIVET DISTRICT.

The sett contains several lodes and branches, and a large quantity of streamer's refuse, which will all pay for stamping, and leave good profits, as there is water-power available.—Further particulars may be known by applying to "S. H." Post-office, Roobe, St. Austell. If not sold, the owner would treat with any gentleman to form a company for working the same.

MINING MATERIALS FOR SALE.—A superior 21 in. cylinder

PUMPING ENGINE, with BOILER 8½ tons, balance-bob, brasses, bearings, and connection rod complete; an 8 armed capstan; a 90 fms. 10 in. capstan rope, scarcely used; WATER WHEEL, 18 ft. by 3 ft., with cast-iron sockets, &c., and a 6 head stamps axle attached; 40 fms. launders, drawing machine, a 9 in. plunger pole and case, complete; 6 in., 7 in., and 9 in. pumps; workings and doors, and windroves; pulley wheels, tram iron, shaft ladders, &c.—Apply to Capt. W. SPARGO, at East Collicombe Mine, near Tavistock.

WILLIAM MATHEWS, ENGINEER, TAVISTOCK,

has FOR SALE:—ONE 30 in. CORNISH PUMPING ENGINE, with BOILER 9 tons; ONE 14 in. HORIZONTAL WHIM ENGINE and cage, with BOILER 4½ tons; TWO 10 horse PORTABLE ENGINES, for winding or pumping; ONE CORNISH CRUSHER; ONE 30 ft. diameter WATER WHEEL, 9 ft. breast, iron axle, sockets and rings; 60 fms. of 3 in. flat-rods, with pulleys.

ON SALE, an excellent HIGH PRESSURE BEAM ENGINE,

40 horse power, with fly-wheel 30 ft. diameter, and 6 tons weight. Diameter of cylinder 20 in. Length of stroke, 4 ft. 4 in. Nearly new.

ON SALE, SECOND HAND, TWO CYLINDRICAL HIGH

</

NICHOLLS, WILLIAMS, AND CO. ENGINEERS
BEDFORD IRONWORKS, TAVISTOCK.
MANUFACTURERS OF STEAM ENGINES OF EVERY DESCRIPTION, made on the BEST AND NEWEST PRINCIPLES. We beg more especially to call the attention of the public to the manufacture of our BOILERS, which have been tested by most of our leading engineers. PUMP WORK CASTINGS OF EVERY DESCRIPTION, both of brass and iron. HAMMERED IRON AND HEAVY SHAFTS OF ANY SIZE. CHAINS made of the best iron, and warranted. RAILWAY WORK OF EVERY DESCRIPTION.
ALL ORDERS FOR ABROAD RECEIVE THEIR BEST ATTENTION. NICHOLLS, WILLIAMS, AND CO. have had 20 years' experience in supplying machinery to foreign mines, and selecting experienced workmen to erect the same, where required.
Messrs. NICHOLLS, WILLIAMS, AND CO. have always a LARGE STOCK OF SECOND-HAND MINE MATERIALS in stock, and at moderate prices.

NEW COMBINED TURBINE, WINDING, AND PUMPING MACHINERY,
MANUFACTURED BY GEORGE LOW, MILLGATE IRONWORKS, NEWARK-UPON-TRENT.
Who respectfully begs to bring the above to the notice of the mining public, as an exceedingly cheap and easy method of applying water-power for the above purposes.
The TURBINE, WINDING, AND PUMPING MACHINERY are all fixed complete to one strong cast-iron bed plate, which can be placed in any situation without pit or excavation, and any height not exceeding 33 ft. from bottom of fall, the supply and suction pipe being all that is required to be connected to it, and can be brought in any direction. This combined machine can be erected where necessary.
Messrs. LOW also state that the TURBINE is the most efficient and the cheapest method of applying water-power for mining purposes.
MANUFACTURER OF WINDING, PUMPING, CRUSHING, STAMPING MACHINERY, WINDING ENGINES, WATER WHEELS.
IMPROVED TURBINE WATER WHEELS CONSTRUCTED EITHER TO WORK VERTICALLY OR HORIZONTALLY, and upon the MOST SCIENTIFIC AND EFFECTIVE PRINCIPLE.
G. Low begs to recommend a special class of turbine adapted for extreme high falls (500 to 600 ft.), and consuming small quantity of water. This turbine will work with equal advantage without running at an excessive velocity. Also, MANUFACTURER OF IMPROVED BORING MACHINES FOR DRIVING ADITS.

HALL AND WELLS, PATENTEES AND MANUFACTURERS OF SUBMARINE TELEGRAPH CABLES, &c.
TELEGRAPH CONDUCTORS INSULATED WITH INDIA RUBBER at 25 pence per mile and upwards, PARTICULARLY ADAPTED FOR MINING PURPOSES. Further particulars as to price of cables, &c., can be had on application at 60, Aldermanbury, City, E.C.; and Steam Mills, Mansfield-street, Borough-road, Southwark, S.E.
Copper wire covered with silk, cotton, or any other material, to order.

CORNISH CRUCIBLE AND BLACK-LEAD POT MAKER.
JOHN JULEFF, FORE STREET, and PEDN-AN-DREA, REDRUTH.

STRONG IRON OIL CISTERNS,
NOT LIABLE TO LEAK, AND ECONOMISE SPACE IN THE STORES:—
DIA. HEIGHT. DIA. HEIGHT.
100 gallons 48 x 84 £10 10 0 75 gallons 27 x 42 £ 8 15 0
400 " 48 x 84 9 9 0 50 " 24 x 36 2 16 0
300 " 36 x 72 7 7 0 40 " 21 x 33 2 5 0
250 " 36 x 72 6 10 0 25 " 21 x 30 1 15 0
200 " 36 x 72 5 5 0 20 " 19 x 26 1 5 0
150 " 30 x 66 5 5 0 20 " 19 x 26 1 2 0
100 " 27 x 65 4 10 0 20 " 15 x 21 0 15 0
STRONG IRON BUCKETS:—
2½ gallons 48, 6d. 3½ gallons 5s. 6d.
2 " 5 0 4 " 6 0
WAGON GREASE, in 4 and 8 cwt. casks.
TURPENTINE SUBSTITUTE, 3s. per gallon, in 30-gallon casks.

TO IRON AND COAL MASTERS, &c.
IMPROVED BLACK VARNISH,
FOR PREVENTING IRON FROM RUST, AND WOOD FROM DECAY.
A brilliant jet black, superior to paint in appearance, dries in less time, contains preservative qualities of the best description, and is economical in its use: one gallon at 1s. is equal to 14 lbs. of paint, which costs 4s.
For COALBURN, HEAD CRANING, RAILWAY WAGONS, BOILERS, CASTINGS, CANAL BOATS, &c., it is especially adapted. In casks containing 10, 15, and 20 cwt. each. In quantities of 1 ton and upwards, price £11 per ton.
GLOVER AND CO.,
No. 40 MANESTY LANE, LIVERPOOL.

ASSAYS AND ANALYSES OF EVERY DESCRIPTION
Conducted by JOHN MITCHELL, F.C.S., M.G.A. (late Mitchell and Rickard)
Author of "Manual of Practical Assaying," "Metallurgical Papers," &c.
All communications and samples to be addressed (free) to Mr. MITCHELL, care of Mr. P. Clay, 29, Great St. Helen's, London, E.C.

CREASE'S PATENT EXCAVATING MACHINERY,
FOR SUPERSEDING THE SLOW AND EXPENSIVE USE OF MANUAL LABOUR IN SINKING SHAFTS, DRIVING LEVELS, TUNNELLING, &c., is guaranteed to drive through any rock of average hardness at a minimum rate of 1 ft. per diem, and to sink shafts at the rate of 2 ft. in three days.
Mr. CREASE will undertake contracts for sinking shafts, driving levels, &c., at an enormous reduction of time and great saving in cost.
Applications to be addressed (for the present) to the patentee, Mr. E. S. CREASE, Tavistock, Devon.

By providing the power of calculating the time and cost to explore a certain depth and extent of ground, speculation in mining will be assimilated to commercial pursuits, with this unmistakable advantage—that when the ground has been once carefully and judiciously selected, and operations properly and systematically carried out for its development, there would be far less chance of unsatisfactory results than are met with by merchants and manufacturers in the usual routine of their business. As this important invention must beneficially interest the landowners, mine proprietors, merchants, and miners, we opine it will meet with immediate adoption. —*Mining Journal*.

PATENT SAFETY FUSE.—The GREAT EXHIBITION PRIZE MEDAL was AWARDED to the MANUFACTURERS of the ORIGINAL SAFETY FUSE, RICKFORD, SMITH, DAVEY, and PRYOR who beg to inform Merchants, Mine Agents, Railway Contractors, and all persons engaged in Blasting Operations that for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE has now a thread wrought into its centre, which, being patent right, is infallibly distinguished from all imitations, and ensures the continuity of the gunpowder. This Fuse is protected by a Second Patent, is manufactured by greatly improved machinery, and may be had of any length and size, and adapted to every climate.
Address:—RICKFORD, SMITH, DAVEY, and PRYOR, Tuckingmill, Cornwall.

CHARLES DAVEY AND CO.
SAFETY FUSE MANUFACTURERS,
ST. HELEN'S JUNCTION, LANCASHIRE.

BASTIER'S PATENT CHAIN PUMP.
APPARATUS FOR RAISING WATER ECONOMICALLY, ESPECIALLY APPLICABLE TO ALL KINDS OF MINES, DRAINAGE, WELLS, MARINE, FIRE, &c.

J. U. BASTIER begs to call the attention of proprietors of mines, engineers, architects, and the public in general, to his new pump, the cheapest and most efficient ever introduced to public notice. The principle of this new pump is simple and effective, and its action is so arranged that accidental breakage is impossible. It occupies less space than any other kind of pump in use, does not interfere with the working of the shafts, and unites lightness with a degree of durability almost imperishable. By means of this hydraulic machine water can be raised economically from wells of any depth; it can be worked either by steam-engine or any other motive power, by quick or slow motion. The following statement presents some of the results obtained by this hydraulic machine, as fully demonstrated by use:

1.—It raises water from 90 to 99 per cent. of the motive power.
2.—It is a simple and easy machine, and its price and expense of installation is 75 per cent. less than the usual pumps employed for mining purposes.
3.—It occupies a very small space.
4.—It raises water from any depth with the same facility and economy.
5.—It raises with the water, and without the slightest injury to the apparatus, sand, mud, wood, stone, and every object of a smaller diameter than its tube.
6.—It is easily removed, and requires no cleaning or attention.
7.—It is easily removed, and requires no cleaning or attention.
8.—It is easily removed, and requires no cleaning or attention.

A mining pump can be seen daily at work, at Whal Concord Mine, South Sydenham, Devon, near Tavistock; and a shipping pump at Woodside Graving Dock Company (Limited), Birkenhead, near Liverpool.

J. U. BASTIER, sole manufacturer, will CONTRACT TO ERECT HIS PATENT PUMP AT HIS OWN EXPENSE, and will GUARANTEE IT FOR ONE YEAR, or will GRANT LICENSES to manufacturers, mining proprietors, and others, for the USE of his INVENTION.

OFFICES, 63, DEAN STREET, SOHO SQUARE.
London, March 21, 1859. Hours from Ten till Four. J. U. BASTIER, C.E.

ACCIDENTS BY ROAD, RIVER, OR RAILWAY.
ACCIDENTS IN THE FIELD, THE STREETS, OR AT HOME,
May be provided against by taking a Policy of the
RAILWAY PASSENGERS' ASSURANCE COMPANY,
64, CORNHILL, LONDON.

£140,000 has been already paid as compensation for accidents of all kinds, in 75 fatal cases, and 6880 cases of personal injury.

Rates and further particulars may be obtained at the railway stations, of the local agents, or at the

HEAD OFFICE, 64, CORNHILL, LONDON, E.C.
Railway Passengers' Assurance Company, WILLIAM J. VIAN, Sec.
Empowered by special Act of Parliament, 1849.

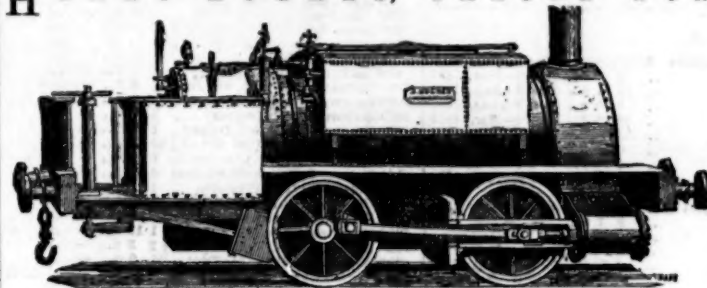
LEICESTER AND CO. (late Leicester, Brache, and Teague),
CONSULTING MINING ENGINEERS AND SURVEYORS, AND GENERAL
MINING AGENTS, MELBOURNE, VICTORIA, PROCURE MINING LEASES ON
ELIGIBLE TERMS FROM THE GOVERNMENT OF VICTORIA AND NEW SOUTH
WALES, on receipt of a remittance for £200, to cover costs of lease, survey and report, &c. Messrs. LEICESTER AND CO. OFFER TO TAKE THE MANAGEMENT OF MINING
COMPANIES, AND PROVIDE OFFICE ACCOMMODATION, for a percentage on the profits of the company.

For further particulars, apply to Mr. RICHARD MIDDLETON Mining Journal Office, 26, Fleet-street, London, E.C.

All remittances must be made through our bankers, the Union Bank of Australia.

DR. SMITH has just published a free edition of his valuable work, the PRIVATE MEDICAL FRIEND (116 pages), on the Self Cure of Nervous Debility, Loss of Memory, Dimness of Sight, Lassitude, &c., resulting from the errors of Youth. Sent post free to any address, on receipt of a directed envelope, enclosing two postage stamps. Address, Dr. SMITH, 8, Burton-crescent, Tavistock-square, London W.C.

HENRY HUGHES, FALCON WORKS, LOUGHBOROUGH,



Tavistock Ironworks, Devon.—(Established 1804.)

GILL AND CO., ENGINEERS AND IRONFOUNDERS.
MANUFACTURERS OF STEAM ENGINES AND BOILERS. CHAINS OF ALL DIMENSIONS. STEELED SHOVELS to any pattern. EVERY DESCRIPTION OF CAST AND HAMMERED IRON FOR MINING, MANUFACTURING, and AGRICULTURAL PURPOSES.
HAMMER MILLS. EDGE TOOL MANUFACTORY.
FOREIGN MINES SUPPLIED ON LIBERAL TERMS.
VARIOUS DESCRIPTIONS OF SECOND-HAND MACHINERY
CONSTANTLY ON HAND.
N.B.—AGENTS FOR TANGY'S PATENT HYDRAULIC LIFTING JACK, and WESTON'S PATENT DIFFERENTIAL PULLEY BLOCKS.

International Exhibition, 1862.

CLASS IX.—PRIZE MEDAL FOR AGRICULTURAL PORTABLE STEAM ENGINES AND MACHINERY.

CLASS VIII.—PRIZE MEDAL FOR HORIZONTAL HIGH PRESSURE STEAM ENGINES.

For "Good arrangement, good workmanship, and practical success."

CLAYTON, SHUTTLEWORTH, AND CO.,

ENGINEERS,
MANUFACTURERS OF PORTABLE AND FIXED STEAM ENGINES, MACHINERY FOR PUMPING, HOISTING, GRINDING, SAWING, and AGRICULTURAL PURPOSES, &c., adapted for any part of the world.

STAMP END WORKS, LINCOLN; and
78, LOMBARD STREET, LONDON.

Descriptive, illustrated, and priced catalogues free per post.

Prize Medal Awarded Great Exhibition, 1851, for Mining Chains.

EDGE AND SON,

MANUFACTURERS OF
IMPROVED FLAT AND ROUND CHAINS AND WIRE ROPES, for MINING PURPOSES.

BOUKS, KIBBLES, BOILERS, IRON BLOCKS, and BLOCK CHAINS, RAILWAY COUPLINGS, HORSE TRACES, CRANE CHAINS, and SHIP'S CABLES.

MANUFACTORY, COALPORT, SHROPSHIRE.

Prize Medal, International Exhibition, 1862.

AVELING AND PORTER'S PATENT TRACTION

ENGINES AND LOCOMOTIVES FOR MINERAL RAILWAYS.
For prices, illustrated description, and testimonials, apply to AVELING and PORTER, engineers, Rochester, Kent.

RAILWAY STONE AND COAL WAGONS TO BE LET.
Apply to Messrs. W. L. and T. UNDERHILL, Tipton.

RAILWAY CARRIAGE COMPANY (LIMITED).
ESTABLISHED 1847.

OLDBURY WORKS, NEAR BIRMINGHAM.
MANUFACTURERS OF RAILWAY CARRIAGES AND WAGONS, and EVERY DESCRIPTION OF IRONWORK.

Passenger carriages and wagons built, either for cash or for payment over a period of years.

RAILWAY WAGONS FOR HIRE.

CHIEF OFFICES, OLDBURY WORKS, NEAR BIRMINGHAM.
LONDON OFFICES, 6, STOREY'S GATE, GREAT GEORGE STREET, WESTMINSTER.

THE BIRMINGHAM WAGON COMPANY (LIMITED)

is PREPARED TO SUPPLY RAILWAY WAGONS OF EVERY DESCRIPTION, capable of carrying 6, 8, or 10 tons, at annual rentals, or for purchase on deferred payments, on advantageous terms.

EDMUND FOWLER, Secy.
OFFICES, 3, NEWHALL STREET, BIRMINGHAM.

ELLIS LEVER, INVENTOR AND MANUFACTURER OF THE

IMPROVED SAFETY BRATTICE AND FLEXIBLE TUBING,
23, MARSDEN SQUARE, MANCHESTER.

MANUFACTORY, WEST GORTON WORKS, MANCHESTER.

COAL CUTTING MACHINERY.

The WEST ARDSLEY COMPANY having, by recently patented improvements, perfected their coal cutting machinery, worked by compressed air, are NOW READY TO MAKE CONTRACTS FOR THE CONSTRUCTION AND USE OF THEIR MACHINES.

The results of twelve months' experience in the working of these machines, by the West Ardsley Company, have proved most satisfactory, their use being found to CHEAPEN THE COST AND IMPROVE THE AVERAGE SIZE OF THE COAL, TO LIGHTEN THE LABOUR, and also to MODIFY THE SANITARY CONDITION OF THE MINE.

All communications to be made to Messrs. FIRTH, DONISTHORPE, and BOWER, No. 8, Britannia-street, Leeds.

NOTICE.—The WEST ARDSLEY COMPANY, having reason to believe that their patents are being infringed upon, hereby give notice that they will TAKE LEGAL PROCEEDINGS AGAINST ALL PARTIES who may MAKE FOR SALE, OR USE ANY MACHINERY in the construction of which any such INFRINGEMENT is MADE.

EDWARDS'S PATENT MINERAL ORE AND COAL

WASHING MACHINE.—This is by far the MOST ECONOMICAL, as well as the MOST PERFECT MACHINE MADE. Each machine is capable of washing 25 to 50 tons per diem, according to quality.—Full particulars, testimonials, &c., may be obtained from E. EDWARDS, Esq., C.E., 1, York-buildings, Adelphi, where a working model may be seen.

Adopted by the Governments of Great Britain, Spain, Denmark, Russia, Brazil, East and West Indies.

EASTON'S PATENT BOILER FLUID,

FOR REMOVING AND PREVENTING
INCORUSTATION IN STEAM BOILERS, LAND AND MARINE.
P. S. EASTON AND G. SPRINGFIELD,
Patentees and Sole Manufacturers,
37, 38, and 39, WAPPING WALL, LONDON, E.

Or of their Agents in the principal towns of Great Britain and the Colonies.

FISHER BROTHERS AND CO.,

FIRE BRICK MANUFACTURERS, STOURBRIDGE.

BLAST FURNACE BRICKS OF THE MOST DURABLE QUALITY SUPPLIED, to ANY SPECIFICATION.

SHORTTRIDGE, HOWELL, AND CO., HARTFORD STEEL

WORKS, SHEFFIELD, SOLE MANUFACTURERS OF HOWELL'S PATENT HOMOGENEIZED METAL PLATES FOR BOILERS, LOCOMOTIVE FIRE BOXES and TUBES, COMBINING THE STRENGTH OF STEEL WITH THE MALLEABILITY OF COPPER. RUSSELL AND HOWELL'S PATENT CAST STEEL TUBES.

McCONNELL'S PATENT HOLLOW RAILWAY AXLES.—For prices and terms, apply to SHORTTRIDGE, HOWELL, and Co., Hartford Steel Works, Sheffield; or Messrs. HARTVET and Co., 12, Haymarket, London.

TESTIMONIAL TO WILLIAM HENRY JAMES, C.E.,

In recognition of his unrequited public services in connection with the founding of our magnificent railway system, by the gratuitous assistance he rendered his late father, William James, Esq., of Warwick, land agent, ironmaster, and civil engineer, in surveying, levelling, and planning the Liverpool and Manchester Railway, with its branches to Bolton, &c., in the years 1821, 1822, and 1823, the first established for engine passenger transit; and for his having allowed the late George Stephenson and his partner, Mr. Losh, of Newcastle-upon-Tyne, the liberty of using his invention of the introduction of Tubes into the boilers of (their) locomotive engines, as shown by an agreement, dated Sept. 1, 1821, which introduction of Tubes, as first suggested by Mr. William Henry James, and since adopted, modified, and perfected by the engineering profession, is well known to every engineer to have caused the entire success of the modern railway system; and, lastly, to compensate him in some slight degree for the loss of his patrimony of £50,000, as settled by will, as well as private property of great value, by the ruin of his father, in 1823, while so engaged, and while so assailing him in laying the foundation of the great railway system of the world, which has already conferred such inestimable benefits upon mankind.

As a guarantee, the following eminent engineers and gentlemen have already attached their names in furtherance of this testimonial, to which it is expected many others will soon be added, viz.:

SIR CHARLES FOX.
PETER BARLOW.
SIR JOHN MACNELL.
THOMAS BRADY.
JOSEPH PARKES.
WM. MARSDEN, M.D.

PERSONAL REFERENCES.
Mr. RICHARD MIDDLETON, Mining Journal, 26, Fleet-street.

Mr. RICHARD A. BROOKMAN, Mechanics' Magazine office, 166, Fleet-street.

It is respectfully requested that all contributions may be made to Messrs. COXTES and Co., bankers, London, who have kindly consented to receive such subscriptions; and any sums offered will be carried to the credit of "Subscriptions for W. H. James, C.E.," and will be held at his disposal.

A complete list of subscribers, together with the amount of their donations, will be published as soon as they shall reach an adequate amount.

International Exhibition, 1862—Prize Medal.

This LOCOMOTIVE ENGINE has been DESIGNED expressly for CONTRACTORS and MINERAL RAILWAYS. It is VERY STRONG IN EVERY PART, and being mounted on small wheels close together, will MOUNT STEEP GRADIENTS and TURN SHARP CURVES.

The BOILERS are of the BEST PLATES, with fire-boxes of Low Moor, are clothed with hair felt, lagged and covered with sheet iron, and PROVED to a PRESSURE OF TWO HUNDRED POUNDS PER SQUARE INCH.

The TYRES are of the BEST YORKSHIRE IRON, and of GREAT THICKNESS. The tank contains 250 gallons.

The FITTINGS consist of BUFFERS, POWERFUL BRAKE, GIFFARD'S INJECTOR, ROSCOE'S OILING APPARATUS, PRESSURE GAUGE, WATER GAUGE, and BLOWER to GET UP STEAM.

The engines are all tried before leaving the works, and an experienced man sent with them free of cost.

Full specification on application.
10 in. cylinders, 15 in. stroke, price £200.

International Exhibition, 1862—Prize Medal.

JAMES RUSSELL AND SONS

(the original patentees and first makers of wrought-iron tubes), of the CROWN PATENT TUBE WORKS, WEDNESBURY, STAFFORDSHIRE, have been AWARDED a PRIZE MEDAL for the "good work" displayed in their wrought-iron tubes and fittings.

Warehouse, 51, Upper Ground-street, London, S.

Prize Medal, International Exhibition, 1862.

RUSTON, PROCTOR, AND CO.'S CELEBRATED

PRIZE PORTABLE ENGINES are SPECIALLY ADAPTED FOR WINDING, PUMPING, SAWING, &c. These engines have, in public competition, won the highest honours. For ECONOMY in WORKING, LARGE ALLOWANCE of POWER in CYLINDER AREA and PROPORTIONATE SIZE OF BOILER, STRENGTH OF CONSTRUCTION, HIGH FINISH, and GENERAL EFFICIENCY they are unrivalled, having recently been AWARDED THIRTEEN GOLD, SILVER, and BRONZE PRIZE MEDALS, and numerous other prizes.

Messrs. A. Knowles and Sons write:—

Pendlebury Colliery, near Manchester, June 5, 1861.

GENTLEMEN.—We beg to inform you that we have now in use the portable engine of 8 horse power you supplied us with, and have great pleasure in informing you that it works well, and we are much pleased with the workmanship and finish of it.

We are, yours respectfully,
ANDREW KNOWLES AND SONS.

Illustrated, descriptive, and priced catalogues may be had on application to the Sheaf Ironworks, Lincoln.

BARCLAY'S PATENT STEAM AND WATER

PRESSURE AND VACUUM GAUGES.

These GAUGES are MADE TO INDICATE ANY PRESSURE FROM ONE TO TWENTY THOUSAND POUNDS upon the SQUARE INCH.

EACH GAUGE IS GUARANTEED FOR FIVE YEARS.

PATENTEE AND MAKER,
ANDREW BARCLAY,
ENGINEER,
KILMARNOCK.

PUBLIC TEST OF WIRE-ROPE.

THE SUPERIOR QUALITY OF GARNOCK, BIBBY, AND CO.'S WIRE-ROPE WAS FULLY PROVED by a RIVAL MANUFACTURE at the LIVERPOOL PUBLIC TESTING MACHINE, on the 29th of October, 1860, on which occasion GARNOCK, BIBBY, AND CO.'S ropes were found to be the STRONGEST of all the TWELVE SAMPLES from different makers then tested, as reported in the papers of the day. For example:—

(Certified by Mr. William Macdonald, superintendent.)

Garnock, Bibby, and Co. Corresponding sizes from other manufacturers.

Sizes. Tons c. Tons c. Tons c.

3¼ in. 18 5 " 16 10 " 11 10

2½ in. 8 15 " 7 15 " 8 0

* Samples taken promiscuously from stock by a rival manufacturer's agent.

GARNOCK, BIBBY, AND CO.,
SWAN HEMP AND WIRE ROPE MANUFACTURERS,
LIVERPOOL.

FLAT AND ROUND STEEL AND IRON WIRE ROPES for MINES, &c., of SUPERIOR QUALITY.

MESSRS. KNOWLES AND BUXTON, CHESTERFIELD,

MANUFACTURERS OF PATENT TUBULAR TUYERES.

The PATENT TUBULAR TUYERE possesses GREAT ADVANTAGES over the ORDINARY TUYERES, both for its DURABILITY and EASY WORKING. A current of cold water going direct to the nozzle prevents their destruction, however much they may be exposed to the fire.

We repair them at half the first cost, making them equal in size to new ones, all parties returning them carriage paid.

No. 1 tuyere, 16 in. long 25s. each.

No. 2 " 18 " 32s. "

No. 3 " 20 " 36s. "

No. 4 " 22 " 40s. "

No. 5 " 24 " 44s. "

Delivered at Chesterfield station. Terms, net cash quarterly.

THOMAS TURTON AND SONS,

MANUFACTURERS OF
CAST STEEL FOR PUNCHES, TAPS, and DIES,
TURNING TOOLS, CHISELS, &c.

CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS, and

FORGINGS OF EVERY DESCRIPTION.

DOUBLE SHEET, BLISTER STEEL, SPRING STEEL, GERMAN STEEL.

Loocomotive Engine, Railway Carriage and Wagon Springs and Buffers.

Illustrated Catalogue, with Prices, forwarded on receipt of 12 stamps.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD.

LONDON OFFICE: 17, KING WILLIAM STREET, CITY.

THE MINING REVIEW, AND JOURNAL OF COMMERCE, TRADE AND MANUFACTURE, SCIENCE AND THE ARTS.

Wednesday, March 26, 1863. Subscription, £1 ls. annually. Price 6d. stamped.

RAILWAYS AND MINES.

Capitalists who seek safe and profitable investments, free from risk, should act only upon the soundest information. The market prices for the day are for the most part governed by the immediate supply and demand, and the operations of speculators, without reference to the bona fide merits of the property. Railways depend upon the traffic, expenditure, and capital accounts, the probabilities of alliance or competition with neighboring companies, the creation of new shares, the state of the money market as affecting the renewal of debentures, and other considerations founded on data to which those only can have access who give special attention to the subject. Mines afford a wider range for profit than any other public securities. The best are free from debt, have large reserves, and pay dividends bi-monthly varying from £15 to £25 per cent. per annum. Instances frequently occur of young mines rising in value 400 or 500 per cent. But this class of security, more than any other, should be purchased only upon the most reliable information. The undersigned devote special attention to railways and mines, afford every information to capitalists, and effect purchases and sales upon the best possible terms. Thirty years' experience in mining pursuits justifies us in offering our advice to the uninitiated in selecting mines for investment; we will, therefore, forward, upon receipt of Post-office order for 5s., the names of six dividends and six progressive companies that will, in our opinion, well repay capitalists for money employed.

Messrs. TREDNICK AND CO., STOCK AND SHAREBROKERS, and DEALERS IN BRITISH MINING SHARES, 78, LOMBARD STREET, E.C.

THE NEWCASTLE CHRONICLE AND NORTHERN COUNTIES ADVERTISER. (ESTABLISHED 1764).

Published every Saturday, price 3d., or quarterly 2s. 3d.

THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER.

THE MINING SHARE LIST

DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
1000	Alderley Edge (Cheeshaire) [L.]	10 0 0	—	—	7 18 0	0 10 0—May, 1862
4000	Balford United (copper) [L.]	2 8 8	—	—	13 10 0	0 1 0—June, 1862
1248	Boscawell (tin, copper) [L.]	8 15 0	—	—	0 10 0	0 0 0—Aug, 1862
240	Boscawell (tin, copper) [L.]	20 10 0	—	—	36 10 0	1 0 0—Mar, 1862
3000	Botalack (tin, copper) [L.]	91 5 0	—	—	469 18 0	7 0 0—Aug, 1862
8000	Bronford (lead), Cardigan [L.]	2 7 6	—	—	0 11 0	0 2 0—Aug, 1862
816	Cargill (silver-lead), Newlyn [L.]	15 7 0	—	—	4 15 0	1 0 0—Aug, 1862
1000	Carn Brea (copper, tin), Illogan [L.]	15 0 0	—	—	278 10 0	2 0 0—Feb, 1862
3000	Chiverton (lead), Ferranabuloe [L.]	—	—	—	—	—
2900	Clifford Amalgamated (copper), Gwyn [L.]	30 0 0	—	—	29 6 0	0 12 0—Aug, 1862
1024	Copper Hill (copper) Redruth [L.]	12 0 0	—	—	2 7 6	—
12000	Copper Miners of England [L.]	25 0 0	—	—	7 1/2 per cent.	—
40000	Ditto (stock)	100 0 0	—	—	1 per cent.	—
1055	Craddock Moor (copper), St. Cleer [L.]	8 0 0	—	—	7 12 0	0 4 0—July, 1862
612	Creebrawse and Penkell, St. Columb [L.]	—	—	—	0 10 0	0 10 0—Jan, 1862
887	Cwm Erwin (lead), Cardiganshire [L.]	7 10 0	—	—	9 18 0	0 15 0—July, 1862
123	Cwmystwith (lead), Cardiganshire [L.]	40 0 0	—	—	255 10 0	4 0 0—Aug, 1862
280	Darwent Mines (all-lead), Durham [L.]	500 0 0	—	—	147 0 0	5 0 0—June, 1862
1024	Devon St. Con. (copper), Tavistock [L.]	1 0 0	—	—	863 0 0	8 0 0—Jan, 1862
358	Dolcoath (copper, tin), Camborne [L.]	128 17 6	—	—	0 18 0	0 1 0—Mar, 1862
13800	Drake Walls (tin, copper), Calstock [L.]	2 1 0	—	—	0 17 0	0 2 0—Jan, 1862
3000	Dynafarnham (lead), Wales [L.]	12 6 0	—	—	111 0 0	0 2 0—July, 1862
512	East Basset (copper), Redruth [S.E.]	29 10 0	—	—	7 6 0	0 12 0—July, 1862
6144	East Caradon (copper), St. Cleer [S.E.]	2 14 6	—	—	87 10 0	2 0 0—Aug, 1862
320	East Darren (lead), Cardiganshire [L.]	32 0 0	—	—	340 0 0	5 0 0—Aug, 1862
128	East Pool (tin, copper), Pool, Illogan [L.]	24 5 0	—	—	—	—
200	Foxdale (lead) Isle of Man [L.]	25 0 0	—	—	0 18 0	0 2 0—Mar, 1862
8000	Frank Mills (lead), Devon [L.]	3 18 6	—	—	5 8 0	0 15 0—Aug, 1862
1792	Great Wheal, Breage [L.]	18 0 0	—	—	2 7 6	0 5 0—Mar, 1862
8008	Great Wh. Yr. (tin, cop.), Helston [S.E.]	40 0 0	—	—	0 8 0	0 1 0—Mar, 1862
1240	Guanis Lake (Olivette's Adit) [L.]	0 0 0	—	—	25 0 0	1 15 0—June, 1862
1000	Hierodafod (id.), near Liskeard [S.E.]	8 10 0	—	—	11 15 0	0 3 0—Aug, 1862
1000	Ilberham Hill (copper), Wales [L.]	15 10 0	—	—	409 10 0	3 0 0—Aug, 1862
4000	Ilberham Hill (copper), Wales [L.]	15 10 0	—	—	2 9 6	0 1 0—July, 1862
1800	Ilberham Hill (copper), Wales [L.]	25 0 0	—	—	122 18 0	7 15 0—Aug, 1862
30000	Mining Co. of Ireland (copper), Wexham [L.]	10 0 0	—	—	15 17 0	0 1 0—Jan, 1862
400	Mont Pleasant (lead), Mold [L.]	4 0 0	—	—	18 18 0	0 7 0—Aug, 1862
40000	Mynydd (iron ore) [L.]	2 10 0	—	—	0 2 0	0 2 0—Mar, 1862
350	Nasty Mines (lead), Montserrat [L.]	20 0 0	—	—	3 0 0	0 2 0—June, 1862
5936	North Trekerby (copper), St. Agnes [L.]	1 0 0	—	—	0 8 0	0 1 0—Dec, 1862
5000	Oradell (lead), Flintshire [L.]	0 8 0	—	—	0 10 0	0 8 0—Mar, 1862
6400	Par Conols (copper), St. Blazey [S.E.]	1 2 6	—	—	36 10 0	0 2 0—Mar, 1862
207	Parys Mines (copper), Anglesey [L.]	50 0 0	—	—	72 10 0	0 10 0—July, 1862
1773	Pollberron (tin), St. Agnes [L.]	0 15 0	—	—	7 9 6	0 10 0—April, 1862
112	Polberron (tin) [L.]	8 0 0	—	—	7 9 6	0 10 0—July, 1862
1193	Providence (tin), Uny Lelant [S.E.]	10 6 7	—	—	69 15 0	1 5 0—Aug, 1862
8000	Rosewell Hill and Ransom United [L.]	2 18 0	—	—	0 10 0	0 1 0—June, 1862
16	Rosewell Hill (lead) [L.]	50 0 0	—	—	1250 0 0	100 0 0—Quarterly
412	South Cardon (copper), St. Cleer [S.E.]	1 5 0	—	—	409 0 0	5 0 0—July, 1862
512	South Tolsa (copper), Redruth [L.]	40 0 0	—	—	74 10 0	1 0 0—May, 1862
5000	South Tolsa (copper), Redruth [L.]	40 0 0	—	—	409 0 0	1 0 0—May, 1862
498	St. Wh. Frances (copper), Illogan [S.E.]	18 18 0	—	—	409 0 0	1 0 0—Sep, 1862
1024	South Woodley [L.]	0 5 0	—	—	0 6 0	0 0 0—June, 1862
200	Spearne Moor (tin, copper), St. Just [L.]	31 17 0	—	—	9 15 0	1 0 0—June, 1862
940	St. Ives Consols (tin), St. Ives [L.]	8 0 0	—	—	497 10 0	1 0 0—Aug, 1862
8000	Tinctor (copper, tin), Pool, Illogan [S.E.]	9 0 0	—	—	13 8 6	1 0 0—Aug, 1862
1000	Trumpet Consols (tin), near Helston [L.]	11 10 0	—	—	11 0 0	3 0 0—Mar, 1862
12000	Twelve Apostles (all-lead), Wrexham [L.]	1 0 0	—	—	—	—
4000	Vigra and Clogau (copper) [L.]	2 15 0	—	—	4 12 6	1 0 0—Oct, 1862
6000	West Basset (copper), Illogan [S.E.]	1 10 0	—	—	24 2 0	0 5 0—July, 1862
1024	West Cardon (copper), Liskeard [L.]	0 0 0	—	—	101 1 0	0 1 0—Oct, 1862
256	West Dannel (copper), Gwynnapp [L.]	38 10 0	—	—	0 19 0	0 3 0—Mar, 1862
6100	West Fowey Consols (tin and copper) [L.]	7 10 0	—	—	388 0 0	5 0 0—Aug, 1862
400	W. Wh. Basset (copper), Camborne [S.E.]	47 10 0	—	—	693 10 0	1 0 0—Aug, 1862
512	Wheal Basset (copper), Illogan [S.E.]	2 6 0	—	—	3 10 0	0 10 0—July, 1862
1000	Wheal Basset and Grylls (tin) [L.]	7 0 0	—	—	5 2 0	1 0 0—June, 1862
1024	Wheal Grylls (tin), Ferranabuloe [L.]	2 4 0	—	—	3 4 6	0 2 0—April, 1862
4800	Wh. Ludcott and Wrey (lead), St. Ives [L.]	2 10 0	—	—	76 8 0	1 0 0—Mar, 1862
800	Wh. Margaret (tin), Uny Lelant [S.E.]	9 17 6	—	—	284 8 0	4 0 0—Mar, 1862
100	Wh. Mary (tin), Lelant [S.E.]	86 0 0	—	—	37 6 0	0 1 0—Mar, 1862
1024	Wh. Mary Ann (id.), Menhenese [L.]	8 0 0	—	—	156 15 0	3 0 0—Aug, 1862
80	Wh. Owsley (tin), St. Just, Cornwall [L.]	70 0 0	—	—	47 12 6	0 10 0—Aug, 1862
394	Wh. Treawny (all-lead), Liskeard [S.E.]	5 17 0	—	—	0 10 0	0 10 0—Aug, 1862
2044	Wh. Tremayne (tin), Gwynnapp [L.]	6 11 3	—	—	48 3 6	1 0 0—Aug, 1862
5000	Wicklow (copper) [L.]	5 0 0	—	—	—	—

* Dividends paid every two months. † Dividends paid every three months.

MINES WITH DIVIDENDS IN ABEYANCE.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
2450	Cook's Kitchen (copper), Illogan [L.]	17 15 0	—	—	1 7 0	0 7 0—May, 1862
4076	Devon and Cornwall (copper) [L.]	5 16 0	—	—	0 10 0	0 2 0—Feb, 1862
672	Ding Dong (tin), Guisance [L.]	40 18 0	—	—	18 7 6	1 10 0—Mar, 1862
940	Fowey Consols (copper), Tywardreath [L.]	4 0 0	—	—	41 9 0	2 0 0—June, 1862
8000	Great South Tolsa (S.E.), Redruth [L.]	4 15 0	—	—	7 18 0	0 2 0—Dec, 1862
8000	Kelly Bray (lead, copper), Callington [L.]	4 15 0	—	—	0 6 0	0 0 0—Feb, 1862
160	Levant (copper, tin), St. Just [L.]	2 10 0	—	—	1091 0 0	0 0 0—Mar, 1862
6000	New Birch Tor and Vifler Cons. (tin) [L.]	1 6 0	—	—	0 3 0	0 1 0—Sep, 1862
470	Newtownards Mining Co., Co. Down [L.]	60 0 0	—	—	5 6 0	0 1 0—Sep, 1862
8000	Tamar Con. (all-lead), Berrall [L.]	4 10 0	—	—	5 6 0	0 2 0—Jan, 1862
572	Trevelyan Consols (tin), St. Ives [L.]	12 10 0	—	—	7 0 0	0 10 0—Sep, 1862
1024	Wendron Consols (tin), Wendron [L.]	13 10 0	—	—	8 15 0	1 0 0—Jan, 1862
60	West Burton Hill (lead), Yorkshire [L.]	60 0 0	—	—	14 10 0	3 0 0—Jan, 1862
256	Wheal Butler (copper), Redruth [S.E.]	8 0 0	—	—	929 0 0	2 0 0—Mar, 1862
8000	Wheal Chiverton (lead), Ferranabuloe [L.]	33 0 0	—	—	2400 10 0	5 0 0—Feb, 1862
128	Wheal Friendship (copper), Devon [L.]	60 0 0	—	—	0 5 0	0 5 0—May, 1862
1024	Wheal Hearn (tin), St. Just [L.]	10 18 0	—	—	13 10 0	1 0 0—Mar, 1862
612	Wheal Jane (silver-lead), Ken [L.]	3 10 0	—	—	8 10 0	0 1 0—Apr, 1862
1024	Wheal Kitty (tin), Uny Lelant [S.E.]	2 0 0	—	—	0 18 6	0 2 0—July, 1862
4298	Wheal Kitty (tin), St. Agnes [L.]	5 4 6	—	—	—	—

FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
3464	Burra Burra (copper), South Australia [L.]	8 0 0	—	—	310 0 0	5 0 0—June, 1863
6000	Central American (silver) [L.]	5 0 0	—	—	2 2 0	0 14 0—Oct, 1862
13000	Cobre Copper Co. (copper), Cuba [S.E.]	8 0 0	—	—	98 12 0	1 0 0—Jan, 1862
10000	Copiapu Mining Company (Chili) [L.]	16 0 0	—	—	6 18 0	0 10 0—Nov, 1862
10000	East Indian Coal, Calcutta [L.]	10 0 0	—	—	1 7 6	0 2 0—Yearly
70000	English and Australian [S.E.]	8 0 0	—	—	0 8 4	0 3 4—Mar, 1863
25000	Fortuna (lead), Spain [L.]	2 0 0	—	—	19 15 0	0 10 0—June, 1862
25000	Gen. Mining Assoc., Nova Scotia [S.E.]	130 0 0	—	—	0 10 0	0 1 0—June, 1862
60000	Kapunda Mining Co., Australia [S.E.]	1 0 0	—	—	9 6 2	0 5 0—June, 1862
15000	Linares (id.), Potosi, Spain [S.E.]	3 0 0	—	—	0 19 0	0 1 0—Feb, 1862
10000	Lusitania (of Portugal) [S.E.]	2 0 0	—	—	0 9 6	0 1 0—July, 1862
103816	Marathon and New Guinea [S.E.]	1 0 0	—	—	0 9 6	0 1 0—July, 1862
100000	Port Phillip (copper), China [S.E.]	1 0 0	—	—	58 0 0	3 10 0—June, 1863
11000	St. John del Rey (L.), Brazil [S.E.]	15 0 0	—	—	0 2 0	0 4 0—May, 1863
43174	Unit. Mexican (all-lead), Mexico [S.E.]	28 5 0	—	—	0 2 0	0 4 0—May, 1863
20000	West Canada Mining Company [L.]	1 0 0	—	—	0 5 0	0 5 0—Aug, 1863
45000	Yadnamatana (copper), S. A. [L.]	3 0 0	—	—	—	—

FOREIGN MINES WITH DIVIDENDS IN ABEYANCE.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last Paid.
10000	Altend and Quansang (copper), [L.]	4 10 0	—	—	4 5 0	0 15 0—Nov, 1863
10000	Barter Land, Min., S. A. [L.]	4 10 0	—	—	15 per cent.	—
10000	Pontgibaud (all-lead), France [S.E.]	120 0 0	—	—	1 0 0	1 0 0—June, 1863

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
35000	Alamillos (lead), Spain [L.]	0 10 0	36	—	..Sept. 1868
30000	Australian (copper), South Australia [S.E.]	7 76	—	—	..May, 1863
20000	Bearis Tin Streaming Company [L.]	0 15 0	—	—	..May, 1868
75000	Bon Accord, South Australia (copper) [L.]	1 0 0	—	—	..Fully paid.
15000	Cape Copper Mining Company [L.]	4 0 0	—	—	..June, 1863
25000	Capula (silver), Mexico [L.]	0 15 0	—	—	..Jan. 1862
17000	Central Italian (copper) [7000 £ paid]	0 0 0	—	—	..Jan. 1869
60000	Clarendon Consols (copper), Jamaica [S.E.]	1 26	—	—	..Nov. 1862
10000	Copiapu Smelting [L.]	10 0 0	—	—	..Fully paid.
150000	Don Pedro North Del Rey (gold), Brazil [L.]	0 10 0	136	% 136	..Ang. 1862
15000	Dun Mountain (copper), New Zealand [L.]	1 0 0	—	—	..Fully paid.
25000	East del Rey (gold), Brazil [L.]	1 0 0	—	—	..Sept. 1861
80000	East Kongberg Native Silver Mining Co. of Norway [L.]	1 76	—	—	..Mar. 1862
20000	Elbe Colliery Company, Bohemia [L.]	0 18 0	—	—	..Fully paid.
80000	Ellerslie and Bardowie (copper), Jamaica [L.]	0 18 0	—	—	..July, 1859
40000	English and Canadian Mining Company [L.]	5 0 0	—	—	..Fully paid.
80000	Fortuna (copper), West Australia [L.]	2 0 0	—	—	..Fully paid.
80000	Great Northern (copper), South Australia [L.]	1 10 0	—	—	..June, 1862
24000	Hindocan (copper), Bengal [L.]	3 0 0	—	—	..Feb. 1863
10000	Karibia Colliery Company [L.]	25 0 0	—	—	..Fully paid.
30000	Lagunazo (sulphur, copper), Portugal [L.]	1 0 0	—	—	..Fully paid.
100000	Montes Aneiros (gold), Brazil [L.]	2 0 0	8	236 8	..Fully paid.
2000	New Burra Burra (copper), Australia [L.]	5 0 0	—	—	..Aug. 1862
60000	New Granada (gold), South America [S.E.]	1 0 0	—	—	..Fully paid.
10000	New Grand Duchy of Baden (silver-lead), near Freiburg [L.]	1 0 0	—	—	..Nov. 1868
80000	North Rhine Copper of South Australia [L.]	0 176	—	—	..Nov. 1862
50000	Nova Scotia (lead and gold) [L.]	1 0 0	—	—	..June, 1863
15000	Pachusa Silver Mining Company, Mexico [L.]	3 10 0	—	—	..June, 1863
17000	Quebrada (copper), Venezuela [L.]	5 0 0	—	—	..May, 1862
10000	San Roque (copper), Spain [L.]	0 10 0	—	—	..Fully paid.
60000	Santa Barbara (gold), Brazil [L.]	0 15 0	—	36	..May, 1862
10000	Scottish Australian Mining Company [L.]	8 0 0	—	—	..May, 1860
50000	St. John's United (copper, lead), Newfoundland [L.]	1 0 0	—	—	..Fully paid.
15000	Teplitz Colliery Co. [L.]	8 0 0	—	—	..Fully paid.
10000	Vallancolas (gold), Italy [L.]	0 5 0	136	% 136	..June, 1863
10000	Vancouver (coal) [L.]	5 0 0	—	—	..Fully paid.
45000	Victor Emanuel (copper), Italy [L.]	110 0 0	—	—	..Oct. 1862
1000	Western Africa Malachite (copper) [L.]	5 0 0	—	—	..Fully paid.
1000	Whal Ellen (copper), South Australia [L.]	1 0 0	—	36	..Fully paid.
30000	Worthing (copper), South Australia [L.]	1 0 0	—	36	..Fully paid.